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The Secondary Education Complex

Preliminary Planning Document

PART TWO

(not for publication)

Boston Public Schools
Office of Program Development
2893 Washington Street
Roxbury, Massachusetts

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PART III (Continued)

Secondary Education Complex Programs

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C. Community Multi-Service Center

The modern concept of education recognizes the school's responsibility and concern for the development of the "total child". Therefore, the Secondary Education Complex (S.E.C.) should provide students and their families access to those resources that will contribute to their social, physical, psychological, cultural, and educational development. The provision for the development of a community multi-service center with the SEC, designed to serve the school community, the neighboring Roxbury community, and the "public" community at large, will serve as an attempt to reverse the traditional communication gap between the urban school and community social service programs. The gap which now exists results in the schools inadequate utilization of the social service resources available and the community service agency's failure to recognize the considerable influence of education in the lives of children and their parents.

The establishment of a community multi-service center will reinforce the magnet concept of the SEC. It will be another important symbol of the school's commitment to the local community and a concrete demonstration of the school's desire to attract local residents to the SEC site. Its existence should generate in local residents the feeling that the SEC is a community resource.

The need for additional multi-service centers in the Roxbury community and particularly in the lower Roxbury area is painfully obvious. The Center would provide space for city wide and local community service agencies to develop a coordinated network of services, including legal, family counseling, day care, health, mental health, housing services, etc. The rationale for a multi-service center is to minimize the possibility of fragmenting people among the variety of service agencies with coordinated programs and to reduce the possibility of duplication or overlapping of services. Its proximity and working relationship with the SEC will guarantee that these resources will be

utilized to support the counseling and guidance efforts of the school and enhance its educational program. Personnel in the Center should be utilized to teach courses in the school and students will have the opportunity for training experiences in the Center under professional guidance. The Center will also serve as a place for local residents to be trained in new human service careers.

A Consortium of Services

The community multi-service center is viewed as a consortium of services drawing upon the potential of local agencies and new federal programs for the development of this service complex. The Pilot Neighborhood Service Program, under the Ecumenical Center, The Model Cities Program, The Boston University Health, and Mental Health Centers, the Roxbury Multi-Service Center, and the City's Office of Public Services are some of the new large health and social service programs which are resources to be tapped for the development of this complex. It would appear that funds from some of these programs could be utilized for the physical development of the multi-service facilities. We would not expect school building funds to support the total building. However, the financial involvement of the SEC is sound, based upon the educational relevance of the projected services and the school programs to operate from these facilities. Negotiation and exploration with local and city-wide agencies and new community programs such as Model Cities is underway and will be stepped up in the near future.

Day Care Services

The Multi-Service Center facilities will provide space for the operation of a Day Care Program. The need for the rapid expansion of day care services in the area has been amply documented. The program will focus on the training of local mothers, particularly welfare recipients enabling them to become qualified day care workers. Local residents will also be employed as community workers to establish an effective communication link between the day care program and the home. The availability of this service will make it possible

for many parents to pursue educational programs, vocational training, and jobs while their young children receive excellent child care services. Currently the Boston Children's Service Association is developing plans for day care service of this kind for the Roxbury area. The Day Care program will offer an excellent opportunity to train many students in child care work as part of the vocational training program of SEC. The reorganization of the Public Welfare System in the Commonwealth, effective July 1, 1968 plans for the provision of day care services as a part of the new comprehensive service system. The possibility of utilizing welfare resources for the development of this service will be explored.

Health Services

The development of a health service program is essential for the SEC. Past experience has demonstrated that too many children go through school with serious health problems which go undetected. The need for effective medical care and health education programs in the school and the community cannot be underestimated. The multi-service complex should provide accommodations for a health clinic, health promotion programs, and mental health education and service programs for students in the SEC as well as for the neighboring community. The recognition that health services must be brought closer to ghetto residents has been manifested in the development of O.E.O. financed comprehensive health centers. Currently, Boston University is developing a comprehensive health center for Roxbury. The possibility of having all or part of the BU Health Center program in the multi-service complex will be explored.

The Neighborhood Health Center movement is in the process of developing a variety of new career lines in relation to the provision of health services. This program offers extraordinary training opportunities for adults and students

Legal Services

The experiences of the Roxbury Multi-Service Center and other neighborhood service programs throughout the city of Boston reveals that the demand for legal assistance services is extremely great. In response to this clear need the Boston Legal Assistance Program is now expanding its neighborhood law offices into six additional communities in Boston. Currently there are three neighborhood legal offices serving Roxbury-North Dorchester, including a new office at Dudley Station. Efforts will be made to include the Dudley Station Legal Assistance Program as an integral part of the SEC Multi-Service Center.

Social Services

The social service program will provide a range of personal and family counseling services for the community. It will include services for children, adults, and the elderly. The social services will be directly tied in with the counseling and guidance services of the schools so that referrals and consultation services can easily flow between the two institutions. Hopefully, the social service program will serve as the intake, information and referral unit for this section of the Roxbury community as a part of the Neighborhood Service Program (NSP). Four intake, information, and referral units under NSP have just been set up. Future planning calls for the expansion of units in succeeding years including the lower Roxbury area. A Unit, funded by NSP, operating out of the SEC Community Multi-Service Center would be ideal. The advantage of such an arrangement would put at the school's instant disposal, the total health and social welfare resources of the Roxbury community as well as city wide services.

Under the NSP the Public Welfare Department will launch a Special Demonstration Project for the Roxbury-North Dorchester area. The Project will set up special service teams that will focus on the delivery of intensive social services for welfare families in the area. High priority will be given to the

employment of residents as a result of special waiver of civil service requirements. It is possible that one or more of those special service teams could operate out of the SEC Multi-Service Center.

The importance of facilities for social services can be seen in light of the growing interest of private social welfare to decentralize staff services into the Roxbury community. Currently, the Family Service Association of Greater Boston; Boston Children's Services; The Church-Home Society, to name a few social service agencies, are planning to bring social services into the Roxbury community. In fact, the Family Service Association has operated casework units at the Roxbury Multi-Service Center on Blue Hill Avenue for the last three years. The likelihood of drawing private agency resources into the SEC Multi-Service Center would appear to be very promising.

Other Related Services

There are a host of other services that could be logically included in the SEC Multi-Service Center. Some of these include the Economic Development Programs of the new Urban League, the Housing Resource Center to be developed by Fair Housing, Inc. and the Roxbury Multi-Service Center and the Neighborhood Services of the Office of Public Services.

It is clear that all of the services mentioned above will be developed with the involvement and consent of local residents. They will have first priority for membership on Board of Directors or Advisory councils developed to formulate policies for the programs. Although the multi-service programs will be available to the total school community, they will have a more direct relationship to residents in the lower Roxbury area.

Relationship of Multi-Service Center to SEC

The relationship between the multi-service center and the schools must be strong, flexible, and responsive if the Center is to justify its existence as a part of the SEC site plan. The Center and the schools must develop ways to utilize the resources that each possess in pursuit of the ultimate development of individual students, parents, and the community. Procedural and administrative mechanisms and policies must be established which permit an easy "flow" between both systems. This flow will include utilization of multi-service center personnel in teaching capacities in the school, training experiences for students in the Center, consultation services provided by the Center, joint research projects by school and center, direct service support for the guidance and counseling program of the school and the development by the center of various training programs for teachers.

The disengagement of public schools and community service agencies is a major problem in the urban community. Unless we find innovative, creative ways to bridge the gap that now exists, the urban school cannot hope to develop the "total child" and the community service center cannot claim to provide preventive and relevant services.

D. Related Resources

I. The Academic Community

The Boston School System is surrounded by a collection of universities and colleges, which, in sheer number and quality, represent the greatest concentration of academic talent and resources of any city in America, perhaps of any city in the world. Cities as large as London, Tokyo, and New York with ten times our population cannot boast of the plethora of institutions that we possess within the ten mile radius of Route 128. The roll call is breathtaking: M.I.T., Boston University, Northeastern, Boston College, Brandeis, Tufts, University of Massachusetts in Boston, Harvard, Radcliffe, Simmons, Emmanuel, and dozens of smaller colleges, community colleges and junior colleges. Certainly with these great well-springs of academic resources in such close proximity to the Boston schools, some method must be found to utilize the talents and material artifacts of learning within these institutions to strengthen our inner city schools. The universities and colleges of Greater Boston are needed in many ways to help the city schools to strengthen their faculties; to inject ideas, concepts and methods of learning which may have proved successful on the college and university campuses, and primarily to bring a sense of reinforcement, of assistance and indeed of friendship and cooperation from a pool of talent which has no equal in any city in the world. Such a relationship, if established and allowed to grow in an atmosphere of mutual understanding, and not proposed as an adversary operation fostering apprehension and distrust, can produce a new kind of educational teamwork that can establish a badly needed model for the rest of the cities in the nation.

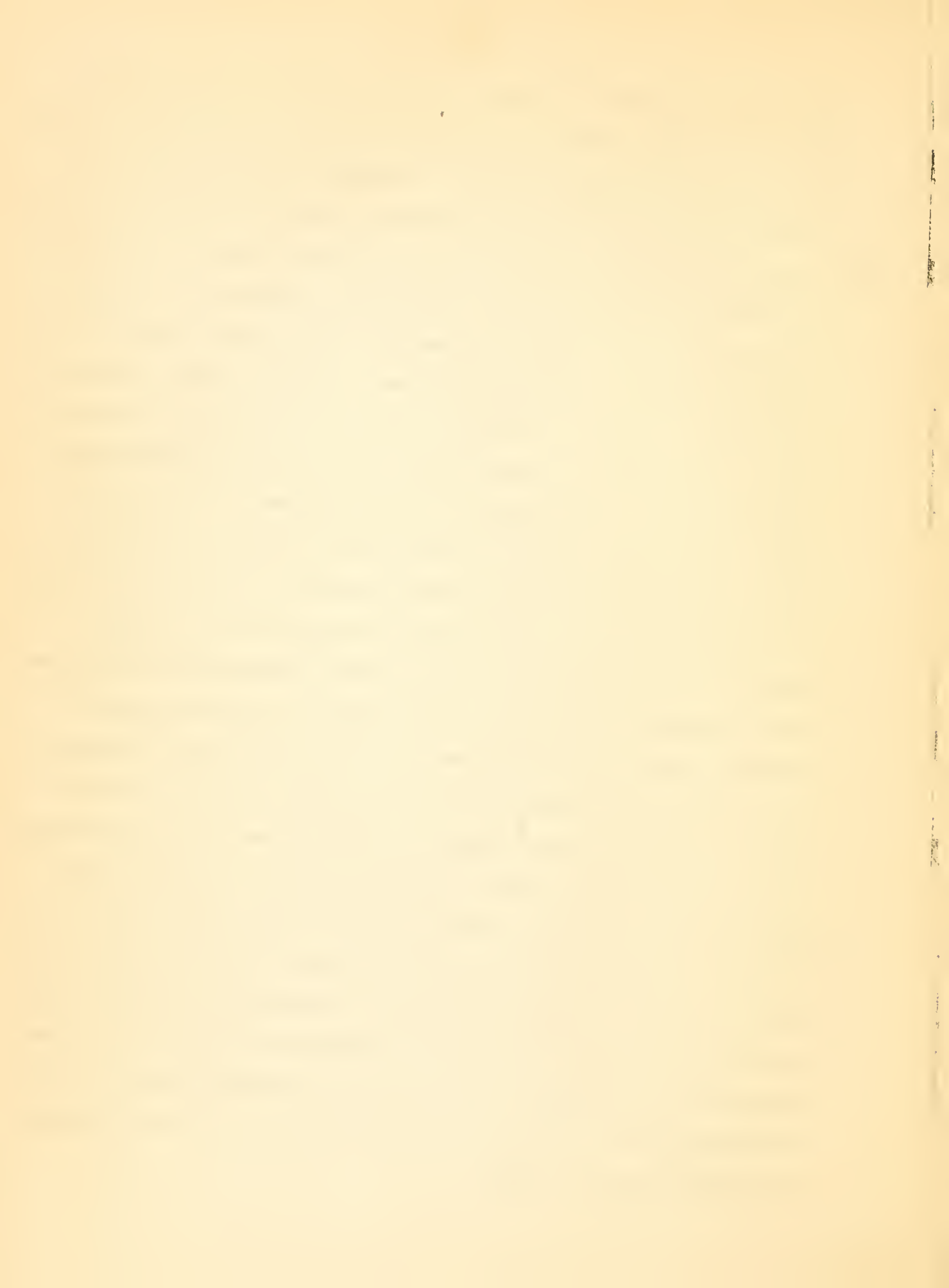
The best chance for a model for such a necessary bridge to be established between the world of higher learning and the secondary schools of this city can be found in the development of this Secondary Education Complex. This

will be the first new central high school in Boston in over three decades. It must be a great school, a school which liberally draws upon the considerable strength and tradition of this city and which summons from its surrounding academic citadels of learning and prestige much of the excellence and dynamic strength that have propelled these institutions into the forefront of American education. This should be a school which invites the many to be exposed to the educational experience that normally is restricted to the few. The new high school can only hope to attain to such distinction if the surrounding institutions of higher learning accept this challenge and begin now to explore the possibilities of using their academic talent and resources to the end of achieving such a goal.

It is impossible at this point to delineate with any precision the nature and contours of such a relationship. We think it is essential to suggest, however, that this be an organic relationship. We would like to see the major universities decide now to commit some of their energy, their talent and resources towards making this new school, not only a symbol of hope, but an embodiment of the social and cultural advantages which these great institutions represent. This relationship has begun already in the early planning stage of the SEC, and it should continue through to the point where the academic community is able to play a role considerably more involved than a perfunctory advisory one, in the administration and teaching that will go on in this school. Only this kind of "involvement" can make a real difference, and contribute towards the pursuit of excellence in the face of great needs.

The school will be designed so that each of its 5,000 students will actually be studying in a House, which like the Oxford colleges would constitute the central educational focus for 1,250 students. Each of these houses will be further broken down into Resource Units of 250 students. It is hoped

that these Houses develop individual styles of operation and these styles might very logically reflect the particular qualities and strengths of the related institution of higher learning. For example, the House which has an organic relationship with the Massachusetts Institute of Technology might provide a special emphasis upon mathematics and the sciences; Harvard might emphasize the humanities, and Brandeis, the social sciences, although these advantages would, of course, be available to students in other houses as well. Each one of these great institutions might start now to develop the kind of relationship with this House which would give it a role in the planning and development of its curriculum. It could assist the Boston School Department now in conducting studies of the academic level and interests of the students who will be attending this school, the problems they will bring to it, and the best pedagogical methods of eliminating obvious gaps and deficiencies in their present education, and the best methods for developing their individual potential. When the school is actually erected, administrators and teachers from universities could assist in implementing such programs, supplying teachers, tutors, even equipment and other intellectual tools to strengthen the effort. These "outside" recruits would certainly not "take over" the functions of a regular administration or faculty at the school, but they would complement them and assist them in every way possible. This might include assisting teachers, developing special seminars for the teaching staff and for students on the university campus; offering special lectures for large groups which would later be followed up by smaller seminars with the regular teaching personnel of the school. There is no reason why a David Reisman or an Erik Erikson would not stimulate a high school class as well as a group of college undergraduates, and if there is, then there is still much for these outstanding college lecturers to learn.



There is no need to spell out in detail precisely what role the college and university partners in the new school would perform, but they would go where they could be most useful and perform those functions which would be most conducive to the improvement of the learning process in the school. It would obviously take different forms in different subject areas, and also be affected by the needs of the students, the strengths and weaknesses of the regular teachers, and even the personalities and styles of the university visitors. Proposals for cooperative assistance would emerge not from some master plan but would grow out of the experience itself. Such a relationship could start in some of the existing high schools right away, and the participants could feel their way to some better understanding of the problems involved. Any suggestion that the universities and colleges could contribute to the improvement of secondary education in the city without such a period in which they would familiarize themselves with the school's problems, get acquainted with the teaching staffs, experience and evaluate the present teaching methods and results would certainly be folly. A long period of quiet study and reflection will certainly be necessary before any significant practical proposals can be developed. This period must be permeated by a very cautious sensitivity on both sides, a willingness to explore patiently the other person's point of view, a respect for the regular teacher's ultimate responsibility in his classroom and in his school. This must not be an adversary confrontation, but an adventure in learning, listening and gentle persuasion, with the university people coming in as sympathetic observers, revealing in their demeanor and their questions a willingness to learn, an appreciation for the difficulties faced by the teachers in the inner city, and an awareness that social and educational change usually takes place in small and inconspicuous increments, rather than in sweeping program^matic policies that may or may not be applicable to the ongoing situation. To succeed, the university-secondary

alliance must not be an invasion of the inner city schools by outsiders, but a cooperative effort to explore ways and means by which the schools, the teachers, the administrators and finally, but most important, the students, can utilize, in fact exploit, the considerable college and university educational resources that are really part of and belong to the city, as well as the surrounding communities which have for so long made extensive use of them.

The facilities implications for such an organic relationship between the university community and the new SEC will be difficult to assess. A relationship as undefined as that which has been described here cannot be easily translated into any kind of precise spatial dimensions. However, certain basic considerations with rather general spatial implications do emerge from this concept. An acceptance of the concept of a strong university relationship should be embodied and reflected in the design of the school, for it will immediately give symbolic as well as a very practical support to the permanent and substantial nature of the relationship, a very important factor which will ease some of the psychological, social, intellectual and political obstacles that are sure to arise in the beginning. More space will be needed if this arrangement is to work effectively, for the university increment is not a replacement for the regular teaching staff, but an addition to it. We would think that a 10 percent staff increment in terms of space would be a very safe limit with which to work, but even if such attached personnel or consultants were not present in the school on a regular daily basis, they would require adequate office space anyway so they could establish a comfortable physical base which had some permanency within the school. These offices should be large enough to accommodate small conferences of university people with regular staff members and/or students; or some additional conference rooms should be available to handle such essential meetings. Any acquaintance with the pres

Boston schools will indicate how crippling the lack of adequate space has been for the regular teaching and administrative staff. Teachers and guidance counselors invariably (except for Boys Latin) lack adequate private facilities for interviewing students. Frequently guidance counselors do not have a really private office to themselves, and sometimes they have to go outside of their offices to reach a telephone. When one thinks of one of the normal university practices which might be introduced into the new school - psychological counseling - this need for office space, private and sound proof, is extremely important.

We do not anticipate that the teaching demands of the university consultants will require any special classrooms, for all teaching facilities in the new school will be reasonably flexible and will be able to accommodate anything from a small tutorial to an occasional large lecture for 100 to 150 in the House auditorium. There is every expectation that tutoring may be necessary for a proportion of the incoming students, and small tutoring carrels accommodating anywhere from two to four people ought to be seriously considered. These could also be used as studies for students with serious problems of working at home, a very common situation if the experience of Upward Bound programs is any indication. This may appear as an extravagant use of space, but a school which aspires to accomplish what this school does must give this kind of problem serious consideration. Space and above all privacy are essential for the purposes suggested. In a House educating 1,250 students 50 such carrels would not be an inflated figure. And again, this revolutionary (for a high school) use of space can make the rest of the spacial demands somewhat more modest, and the use of other space components much more effective. In addition, there should be one room per house with a one-way window for observation, not only by the university consultants, but also to enable other teachers in the system from outside the school to observe the operation of

of classes and seminars in the new school.

Finally, despite the existence of the MBTA, it ought to be assumed in the planning and design of the school that very adequate parking facilities ought to be provided to provide space not only for the regular staff, but also for the university consultants, and for a large number of student tutors.

II. Business, Industry and Labor

While we feel that operating links with the colleges and universities in the Greater Boston area are of primary importance to the SEC program, we feel also that the SEC philosophy and educational system requires equally strong links and programmatic ties with the vast industrial and business complex represented by Boston itself and the surrounding area marked in general by Route 128.

Ties already exist between the Boston Public Schools and much business and industry within Boston, in the form of the cooperative trade courses, the two trade schools, the Work-Study Program and the distributive education programs. What we envision here, however, is something quite beyond these admittedly valuable arrangements. We are here not thinking of "business and industry" simply as a source of future jobs, although that aim is certainly very high on everyone's list. We are, rather, at this moment more concerned with business and industry as a vast educational resource that has largely remained untapped over the years.

The phrase "business and industry", after all, describes perhaps 80 percent of what goes on in the United States of America, depending upon one's definitions. Not all forms of business and industry are immediately present within the Greater Boston area. We lack mining, steel mills, or the enormous manufacturing complexes of a Detroit, to name a few instances. What we do have to a greater degree than almost anyone else, however, is business and

industry based upon brainpower and technical skill -- the electronics and electronics research complexes of Route 128, the banks, insurance companies and precision manufacturing firms that require greater and greater educational sophistication in their employees.

In a very real sense, these more sophisticated types of business and industry are the business and industry of the future. The day is rapidly arriving when the more routine and therefore dull jobs will be increasingly done by automated machinery -- jobs on assembly lines, office work of all kinds, etc. What will be needed is people who can design and operate complex machines and systems of machines, people who have some profound understanding of what the industrial and commercial enterprises are all about, people with the imagination to invent and produce new products as old ones go out of style or lose their appeal or usefulness.

It is clearly the job of the schools -- and certainly the job of the SEC -- to help every student become this kind of eminently useful and educationally sophisticated person. But it is equally clear that the SEC -- or any other school -- cannot do this in isolation from the business and industry that will use its graduates, the business and industry which is looking to the schools to provide people with up-to-date rather than outmoded skills.

But there is another way to look at this problem, and that is from the point of view of business and industry itself, especially business and industry that either is housed in the city or that wishes to be sufficiently close to a big city in order to enjoy its commercial and cultural benefits.

The simple fact is that most large companies are located in urban areas. They are located there for good reasons -- closeness to other companies with which they do business, the ease of communication and the richness of contact with others in their field, the availability of labor force to man their machines or offices, and the availability of urban attractions such as theaters, restaurants, films, music and a wide variety of shopping opportunities.

Even companies that feel they do not have to be in the inner city itself still feel the need to be located nearby so that their employees and executives can avail themselves of the advantages of urban centers and urban life.

The point here is that all forms of business and industry whether they realize it or not, have an enormous stake in the survival of cities. And the industries and businesses of Greater Boston have an enormous stake in the survival of Boston not just as a city but as a viable, living city. Boston will be of little use to its banks, its stores, its manufacturing enterprises, and of little use to Route 128 if it becomes a city almost wholly composed of relatively uneducated poor people most of whom could be contributing little beyond great increases in welfare costs and added tax burdens.

As we have pointed out previously, Boston must therefore have a first class educational system if its people are to be able to be a major productive element in the industrial and commercial life of Greater Boston. And if the SEC is to play a major role in the creation and maintenance of that first class educational system, then it is clearly within the best and wholly enlightened self-interest of business and industry to devote some impressive share of their resources to the task of making the SEC a first class and eminently useful school.

We would therefore divide the ~~relationship~~ between the SEC and business and industry into two closely related parts.

The first of these is the primary task of the SEC as an institution of secondary education -- in short, what is it that the SEC should be teaching and how should it be taught so that its students do emerge as eminently useful and educationally sophisticated people? We see business and industry including organized labor closely connected with the faculty of the SEC and its university affiliates in helping to determine what these goals should be.

The second part of the relationship is the use of business, industry and labor unions as an educational resource -- if business, industry and labor are a large part of American life, how can students at the SEC at an early age in their educational careers begin to find out at first hand what business and industry are all about, how they work, what the economic laws are which govern their performance, what the relationship is (or is not) between business industry, labor and government? This means students spending large parts of their time outside the school, not so much working in business or industries but in studying their operations, discovering what makes them tick or stop ticking, what the effects on people are of working in large corporations or large unions, etc.

Obviously, these two inter-related aims converge on the central relationship between people in various businesses, industries and unions and the people on the faculty of the SEC. Just as with the college and university people, we see one part of this activity comprising business, industry and labor people devoting some of their time to coming into the school as part-time lecturers and demonstrators (and also as models of what the future might hold for students). We would hope that by this system we could have available to the SEC the enormous technical resources and talents that abound in business and industry.

The other part we see occurring within the context of an elaborate co-operative program in which individual businesses and industries take on the burden essentially of helping students learn about their operations, their philosophies, their aims. We do not mean here guided tours of the building, but rather the adoption of selected interested students by companies and union in an educational program jointly devised by the companies and the SEC staff, a program which allows students to spend considerable amounts of time (with full educational credit) observing the operations of the companies and unions, making case studies of individual problems and their possible solutions per-

haps in part through the use of simulated gaming techniques, either within the companies or in school.

Such an elaborate, two-fold endeavor obviously will demand a careful and lengthy planning process, as well as considerable interest and cooperation from companies and unions.

As one possible device here we would like to put forward the idea of a permanent (although perhaps with rotating membership) business-industry-labor advisory council to the SEC to provide cooperative exploration of the possibilities of such arrangements as those listed above. We might also hope and expect that this council would work very closely with the college and university people. Indeed, there might be joint participation on the part of the SEC staff, the academics and the business-industry-labor group.

In addition, it would greatly facilitate the workings of this kind of program if space were provided in each house for a small office or a small suite of offices out of which the cooperative business-industry-labor people could operate. Since this kind of arrangement would be similiar to the arrangement with the colleges and universities, it might be conceivable to combine these necessary spaces into a small suite that could be used jointly by visiting outsiders, including community people and para-professionals. This should be equipped with desk space, telephones, files and a clerk-secretary who can handle communications and act as a liaison agent between the various groups and individuals and the school staff.

'E. Cultural Arts

The cultural arts center of the SEC should be one of the foremost of the complex's "magnet" attractions, both in terms of the educational program for secondary students and as a contribution to the civic and cultural life of Boston. We intend that it should provide a first-class, complete cultural program for students and should fill several gaps in the present availability of space for the performing arts in the city.

It is not our intention, at the moment, to provide within the SEC a permanent cultural center for established professional companies. We are not proposing, obviously, a replacement for Symphony Hall or the Museum of Fine Arts. Nor do we contemplate providing a permanent home for the Boston Opera Company or the resident repertory theater companies although it is perfectly possible and desirable that these groups and touring professional companies -- will have a strong relationship with the SEC and use these facilities frequently for a variety of purposes.

We are much more interested in establishing within the complex a center for education in the cultural arts, a center that will have its closest ties to existing or planned institutions that have a strong educational bent, and to institutions that have a strong community orientation. This should primarily be a place where people -- both students and adults -- do things, rather than primarily a place where people come to be an audience.

Clearly there will be performances and exhibits of all kinds continuously going on in this center. Some of these will be of a highly professional calibre, others will be of a more civic or mixed professional-amateur nature, and many will be student or adult-amateur performances.

However, we see all of these performances as having an essentially educational function, even those that are primarily observed rather than participated in. Whatever professional level performances go on we would see

as having a heavy student involvement in their preparation and execution, wherever such involvement is feasible. Professional performers, for instance, could, be part-time staff members of the center. Performing groups could as part of their arrangement for the use of facilities, hold open rehearsals or give special instruction for students in the center.

Since this center will have a city-wide focus for the students and adults, we feel strongly that it must be situated in such a way that people from all over the city have quick and easy access to it. It is for this reason that we have proposed and recommend that this center be constructed on air rights above the proposed MBTA stop at Roxbury Crossing. We realize that this is a more complicated arrangement than simply building the center on the nearest corner of the SEC site. But we feel that there are several important reasons for doing so, even above and beyond the central reason of sheer ease of access.

One reason is that unless the school is coordinated in some fashion with the MBTA stop and the Southeast expressway, the SEC will essentially be cut-off and isolated by both the highway and MBTA line, even if both of these were to be depressed (rather than elevated as called for in the present plans). The SEC would have no natural point of entrance and exit other than the Dudley Station corner of the site. In order to get to the school, a student or adult from outlying parts of the city arriving by MBTA would have to travel through a tunnel (if the highways remain elevated) or over some kind of bridge (if the highways are depressed).

A second and more positive reason is that adults and students arriving by MBTA could be quite naturally exposed to the school and one of its most creative and attractive functions immediately upon emerging from the main transportation point if the MBTA stop and the cultural arts center were to be integrated into a single structure. This does not mean that MBTA arrivals would walk through the concert hall in order to get to the rest of the SEC.

It does mean that people arriving on the MBTA would emerge into a space that was a combined MBTA exit and lower section of the cultural center. This area would have art displays, posters advertising cultural events, display models of stage sets, costumes, musical instruments, as well as ticket booths. It would also be the western terminus of the public concourse, leading out over the highways to the rest of the SEC and its facilities beyond.

Designing the Cultural Arts Center

The design of these new facilities for the performing and visual arts in the SEC affords an unusual opportunity for an exciting interaction between active professional people, the educational program of the high school and the people of Boston. The regular association of professional painters, artists, dancers, musicians, and actors with the facilities (and through them with the students) cannot help but intensify the impact that the arts will have on the high school students as well as on all those members of the community at large who will be given the opportunity to work with these professionals in these facilities.

Desirable as this interaction between the community and the school may be, its realization may remain more an unattainable idea than a practical possibility unless very careful planning takes place. Community use of the school facilities will require extra spaces and extra cost, in order that after-school programs won't conflict with in-school programs. Physical arrangements have to make it possible to control community intrusions into the school programs. Careful scheduling of certain facilities by in-school and out-of-school groups will be crucial. For example: if a set has been constructed for a theater stage, and a play is in its final rehearsals by a student group, that stage simply cannot be made available to a community theater group during "in-between" hours (in fact, there probably won't be any in-between hours -- the students will be using the stage morning, afternoon, and evening), and if students have

ceramic objects cooling off in kilns, those kilns simply cannot be used by community groups to fire up another batch.

Nevertheless, major facilities for the arts are expensive, and as far as possible, maximum use must be made of them to justify the expense. A well-equipped school auditorium which is used for three high school plays, one band concert, one orchestra concert, and a graduation each year, and remains closed and dark the remainder of the year, would be an absurdity.

In describing the various facilities, reference will be made in each case to their potential for common use by school and community groups.

We see the cultural arts center as having six major sections or divisions, which, although we can list them separately, will most often work together in an interdisciplinary fashion. The six sections are:

1. Music
2. Drama
3. Visual Arts
4. Dance
5. Film
6. Television

We should make it clear that while the major concentration of the larger and more expensive facilities will be within the cultural arts center, the arts program and its facilities are not limited to the center. A great deal of artistic activity will go on within the four houses and their resource units. We shall attempt in what follows to outline briefly and make distinctions between those activities we see occurring primarily in the center and those that will occur in other parts of the SEC.

Facilities for Music and Theater

We group these together because we see the two functions as sharing many of the same facilities.

1. Theater-Concert Hall-Auditorium

A convertible hall seating 1500 persons, having a stage large enough to seat an orchestra of up to 100 musicians (approximately 45' wide and 30' deep) with complete convertibility for use either as a music concert hall, a theater for major productions (with a pit large enough to accommodate an orchestra of up to 45 musicians, with possibilities of expansion to 65 by removing the front seats in the auditorium), or for school assemblies, large enough, therefore, to seat the full student and faculty complement of a House). The acoustics in this hall are crucial in order for its convertibility to be successful. There is a desperate need in the city of Boston for a hall of this size which would be satisfactory for serious musical performances. The only halls for the city of Boston (or in the whole metropolitan Boston area, for that matter) which are completely suitable for concerts are Symphony Hall, seating 2600, and Jordan Hall, with a capacity of just over 1,000. The cost of renting either of the auditoriums, as well as their heavy use by their owners (the Boston Symphony Orchestra and the New England Conservatory of Music, respectively) makes them increasingly unavailable for use by community groups. In terms of the needs of the organizations, it doesn't make much sense for the Civic Symphony Orchestra to have to spend one-fourth of its budget for the rental of a hall, or for the Chorus Pro Musica to spend nearly as much for a hall as for the services of orchestral musicians, and more than for the services of its conductor. A suitable hall made available to non-profit cultural organizations at cost (as is already the case with present school facilities) would be a major contribution to existing organizations, and would certainly tend to proliferate the number of cultural events available to the community. That the issue of musical acoustics is crucial has

been demonstrated by the failure of both New England Life Hall and the John Hancock Hall to be used by concert-giving groups. Each was intended by its designer and builder to be a major addition to the concert facilities of the city, and each has been a complete failure in this regard. Similiarly, there is a need for adequate theatrical facilities for small professional and non-professional groups. Acoustics is not an exact science yet -- we've all learned that lesson from the difficulties experienced at Philharmonic Hall in New York, a hall designed specifically and primarily as the home of a symphony orchestra; but at least there is some probability of success if it is the intention of its designers to come up with acoustical properties which enhance music. Most school halls have not been intended by their designer to do so, but rather have been intended to make it possible for a school principal, perhaps with the aid of a microphone, to be clearly understood by the most inattentive student in the rearmost row of the auditorium. Here, some imagination must be exercised, and a way found by acousticians and designers to convert the acoustics of hall easily and quickly to satisfy needs of both music and speech. Attractive, hinged panels could be affixed to the wall, for example, one side of which would have the property of absorbing acoustic energy, and the other part of which would have the property of reflecting sound. By "flipping" these panels, a good deal of control could be exerted over the reverberation time found within a hall. Acoustic stage shells, easily mountable and demountable are already manufactured in modular units. The factors of dimension and shape of the hall itself can satisfy the requirements of both kinds of use.

In order to minimize the distance from the stage to the furthest seat, the hall should have a balcony seating about 35% of the total capacity. This will also make possible a greater sense of intimacy in the case of smaller audiences, by closing off and darkening the balcony. The hall should have a fully equipped

projection booth, adequate supply space, and lighting equipment for full-scale theatrical production, adequate wings, and access to the wings on both sides from the dressing rooms. There should be adequate access to the stage from scenery storage and construction rooms, so that full sets can be moved in and out. There should be two large dressing rooms with suitable sinks and mirrors. There should be a box office window available for the sale of tickets. The foyer of the auditorium should be adequate to handle intermission audiences, and at the same time should be suitable for art exhibits. The backstage area should also be easily accessible to the outdoors for the delivery and removal of large musical instruments (grand piano, harp, kettle drums, etc.) and of theater sets and equipment. The pit area should be capable of being raised to the level of the stage or lowered to below the level of the floor of the auditorium. In its raised position it will enlarge the stage, which can then be used for large-scale musical productions requiring an enlarged orchestra or the combination of orchestra and full chorus. At the level of the floor of the auditorium, additional seating can be put into the pit by way of folding chairs. At its lowest level, it will be suitable for an operatic pit, lowering the orchestra to below the sight lines of the audience, and diminishing its acoustic competition with singers onstage. The area beneath the stage and behind the pit should be designed so that it can be used by additional orchestra players with access from the rear. The auditorium should have built-in provisions for amplification and recording equipment (multiple outlets for microphone connections, high quality loudspeakers located over the stage, and taps for tape recorders off the amplifier board.)

2. LITTLE THEATER. A smaller auditorium, seating 300 persons, should be designed for use for experimental theater and small concerts and a lecture room for large classes. In a room of this size, convertibility of the acoustics is not as difficult to achieve or as crucial as in a large auditorium; nevertheless, care should be given to this factor.

A complete acoustic shell, unlike the case of the larger auditorium, will not be necessary. Portable acoustic reflectors can be used to project musical sound into the auditorium. The stage, again, should have the accessibility and equipment that would facilitate theatrical production. A stage area of 25' x 15' should be adequate. Flexibility should be built in by making it possible to remove the central portion of the seats on the floor, replacing them with portable staging, providing an extension of the permanent stage, and turning the seats on either side of the stage extension, thus providing a 3/4-in-the-round stage. Suitable projection, amplification, and recording facilities should be provided for.

3. MUSIC ROOMS. Spaces especially designed for use in the music program would include a rehearsal room for band or orchestra, a rehearsal room for chorus, instrument storage space, music storage space, both for chorus and orchestra, office space for staff, six sound-proof studios for teaching, practice, and rehearsal, of which two should be large enough to accommodate a vertical piano plus 7 or 8 instrumentalists, and the remainder large enough to accommodate a piano plus 2 or 3 instrumentalists.

The band/orchestra rehearsal room should duplicate the auditorium stage in size and shape. Its ceiling should be high enough to allow for satisfactory rehearsal acoustics. The chorus rehearsal room will need to be at least 2/3 as large as the band rehearsal room. Provision must be made for the complete sound separation between the auditorium stage and rehearsal rooms. At the same time storage space must be provided for instrumental risers and choral risers located to provide optimum accessibility to the auditorium stage and to the rehearsal room.

In each of the four houses of the SEC itself, there should be a space carefully designed (and probably located in or near the media center of each house) equipped with high quality stereo record, FM radio and stereo tape playback equipment, plus a large library of records and tapes.

4. THEATRICAL SPACE. In addition to the conventional backstage areas necessary for theatrical production (including scenery storage, scenery design and construction, costume design and storage, dressing rooms) for both the large theater and the smaller experimental theater, there should also be two large rehearsal rooms, adequately treated acoustically, so that at least two productions could be in the rehearsal stage simultaneously (or three, if the third is in the dress rehearsal stage and can use the theater-concert hall). It should be stressed also that additional and perhaps less formal theatrical work will go on in the smaller, 300 seat auditoria in each of the houses. These would not have elaborate backstage areas, but would be quite suitable for small productions by individual resource units.

VISUAL ARTS FACILITIES

The visual arts program in this high school must accommodate two distinct groups:

1. Art Majors. It should be kept in mind that terminal courses are undesirable. Too early specialization within too narrow limits is undesirable. All of the art schools are protesting the development of techniques in advance of understanding aesthetics. Furthermore, provision must be made that art students planning professional careers shall have the academic background required for admission to colleges and art school.

2. Non-majors. The needs of students of average ability must not be forgotten. The art center should also provide aesthetic education as part of the cultural experience for academic students as well as the Art majors. A third group of non-majors whose art needs must be provided are those majoring in commercial, industrial arts and home economic courses. The courses needed for such a comprehensive curriculum and the facilities required for these courses are outlined below.

The Visual Arts component should be a group of connected facilities, integrated with the other portions of the arts center. The Visual Arts should be situated near the auditorium with appropriate access to it. The backstage area should open to Visual Arts for cooperative projects by means of large, sliding sound proof walls.

The Visual Arts facility should provide for four main areas of study: Painting, Sculpture, Ceramics and Graphic Arts, with subdivisions for 3D constructions, Photography, Crafts and Lecture Area.

The Fine Arts Center must be a visual center of interest in the whole plan. It should be inviting. It should be restful. There should be included a permanent Exhibition Gallery and a Sculpture Garden. It is suggested that the Visual Arts component be designed around an outdoor Sculpture Garden. This would be important from three points of view. First it would provide a

beautiful setting for good pieces of sculpture, it would provide a place where students from any part of the school could come to relax and study, and it would also by nature of its enclosure afford a greater amount of safety for its works of art.

In addition to the Art Center each house should have one All Purpose Studio to accommodate the Basic Art Course which will be required for all LEVEL I students.

SPECIFIC FACILITIES

DRAWING AND PAINTING

Two drawing and painting studios

GENERAL

One general purpose studio with graphics wall equipped with presses (lithograph, etching), shallow sink, and access to darkroom.

Folding wall may cut off ell to make a small graphics studio and a large drawing or design studio when needed.

CRAFTS STUDIO (Woodworking, weaving, jewelry equipment, peninsular sinks, 220 wiring, gas outlets, one soundproof booth and booth with exhaust fan.

SCULPTURE AND CERAMIC STUDIO - 1 large and ¹small kiln, adequate wiring and exhaust fans, welding equipment, an ell set up for 3D work.

LARGE GENERAL PURPOSE STUDIO - well equipped for initial work in all the specialties already mentioned, as well as facilities for small group and individual independent viewing of slides and films. One of the Art teachers would always be in attendance. Here a student may go for research or to work out a problem which arises in any of the art courses and which the particular studio is not equipped to handle, e.g. student in the design course may wish to carry out his design problem in a graphics medium, or a color problem in weaving, etc. Small booths for individual advance study might be part of this studio. This could be the most important studio in the center for achieving this synthesizing purpose of the arts.

GALLERY

Well designed and lighted, with sufficient security to accommodate traveling exhibits and Museum loans, as well as student and faculty work. Should be located in the general traffic lanes, e.g. off the auditorium lobby.

STORAGE

Expensive equipment must have maximum use to warrant its purchase. Since all studios will have many students using them, safe storage not only of supplies and tools but, equally important, of student work in progress must be adequate and readily accessible. Every studio must have both. Location between and shared by two studios is a possibility. Under-counter and free standing storage for tools and material, close to student work stations, is practical. Student tote trays for 2D work and lockers for 3D constructions must be available. E. H. Sheldon Equipment Co. (among others) will submit suggested specialized furnishing plans if provided with floor plans (such items as a ceramics bench which includes--under a work surface,--storage, damp box, rolling clay cart and potters wheel).

In addition to the immediate storage space there should be one large central storage room for paper (wide shelves needed) prints, and other visual materials, etc.

LECTURE HALL- Equipped for audio visual use.

DANCE FACILITIES - While we see the theater-concert hall being used also for performances of both ballet and dance, these activities really require shower and locker room facilities. We intend that instruction in the dance be available for both girls and boys, but we see this as perhaps taking place more appropriately within the physical education facilities while performances would take place on the stage facilities of the cultural arts center.

FILM FACILITIES

The cultural arts center should also include facilities suitable for the production, editing and screening of student films. These would include a small studio with excellent acoustic properties for interior filming (which could also be used for closed-circuit television broadcasting, editing rooms and a small screening room equipped with suitable projection and sound facilities. This facility should be large enough to accommodate the production of 10 to 12 student films simultaneously. There should also be a small classroom for instruction.

TELEVISION FACILITIES

Although we do not see a great deal of actual instruction being conducted by closed-circuit television (see section on Media Center), we propose that the four houses contain conduits and cables providing the capability of being tapped for closed-circuit TV reception. There would obviously be occasions when it would be desirable to broadcast important messages or special programs throughout the SEC. However, we see most of the TV work in the SEC being done through video tape recorders and cartridge video tape playback devices. The central video facilities in the cultural arts center will probably be limited to using the studio for taping broadcasts or making instructional tapes which then could be reproduced in cartridge form. The TV facilities, however, should be elaborate enough to permit the training of students in the beginning techniques of TV broadcasting.

Ideally, the control booth for the TV facilities should be large enough and located in such a way that it could be used by educational or commercial television personnel for broadcasting or taping performances in the theater-concert hall. This would mean that the booth should have visual access to the theater-concert hall as well as to the small studio. It should also be equipped for such purposes.

CULTURAL ARTS MEDIA CENTER

In addition to the media centers in the Houses and the central media center, the cultural arts center should have its own small student and teacher operated media center for the specialized books, tapes, films, slides and prints associated with its particular subjects. It should be a comfortable and informal place, staffed perhaps by a student or a paraprofessional, but with enough space for a medium sized stock of materials.

GENERAL SPACE RELATIONSHIPS

Until some new fourth dimension is invented it will undoubtedly be impossible for every facility to be located next to every other facility. Certain relationships, however, do seem to be important. The large auditorium and small theater should have either a common lobby or adjoining lobbies where exhibitions will be mounted. This should be integrated with the MBTA station and should be a space through which students will need to pass to get from academic facilities to their work rooms and class rooms in the arts. The scenery construction workshop needs to be adjoining the large stage, and it should not be too difficult to move smaller sets from the same workshop onto the stage of the little theater. At the same time, the scenery workshop should be part of the visual arts complex. It should be possible for students to move easily from the large music rehearsal rooms to the stage of the large auditorium with provision made for moving heavy musical instruments and risers without having to go up and down stairs. In this way, too, the rehearsal rooms can serve as "green rooms" for performers in visiting organizations. Complete acoustic isolation of music rehearsal spaces from each other and from public areas is a must and cannot be taken for granted. Ventilation and air-conditioning of all areas is important, but especially so in the choral rehearsal room, where a large number of people will be occupying a relatively small space,

and in the photography darkroom, which will have a closed door and no windows. Ventilation must be noiseless in the auditorium and music rehearsal spaces (and dust-free in the darkroom). Offices for the faculty members and supervisors of the arts department should be centrally located within each department but, hopefully, not isolated from each other.

ADDITIONAL SPACES NEEDED FOR COMMUNITY USE

The facilities outlined above are intended for in-school use. Obviously, many of them can be used during after-school hours without special adaptation. Music studios and rehearsal spaces can theoretically be used continuously by ever-changing occupants. Complications can arise very quickly, however, in the case of community use of visual arts facilities. Storage of art and photography supplies for school use must be separated completely from supplies for community use. Scenery construction by adults in evening classes for their own productions could easily interfere with the work of students during morning hours. For that matter, when a production is in the process of design and execution by students, it will probably simply not be practical for an adult drama group to be able to use the scenery workshop or the stage at all for a period of two to four weeks.

Completely separate storage facilities will have to be provided for students' work-in-progress (from unfinished sculptures to not-yet-dry negatives).

Administration of an organized after-school arts program will also require additional office space for at least the Director of the program and his secretary.

Professional Consultation in Design

The above outline can by no means be considered a definitive guide for the architect who will work out the detailed plans for the arts facilities; it is intended only to give a rather clear indication of the scope and the complexity of the facilities that will be needed. The details of the actual design must rely on the advice of experienced professional practitioners in each of the arts involved.

F. Athletics and Recreation

1. Principles and Goals

The general features of the athletic and recreation program of the SEC will be:

- a) that every child in the SEC will have an opportunity to participate in and explore a variety of athletic activities.
- b) that the athletic facilities will contribute to the magnet qualities of the SEC by providing facilities for individuals and groups across the city and providing a center for metropolitan and city competition.
- c) that the SEC will provide athletic facilities for use by other school teams which lack adequate (or duplicate) facilities.
- d) that the SEC will provide athletic and recreation facilities needed in the local area surrounding the school and will encourage athletics, recreation, and physical fitness programs for the local residents.

2. The Physical Education Program

The physical education programs of the SEC will be consistent with the other areas of the educational program and the overall concept of the school in seeking to meet the individual needs of each student. This will be done ,
a) through individual evaluation, and b) by offering students wide opportunity for choice.

Every student entering the SEC should receive some evaluation of his or her physical condition and ability to perform certain basic physical activities (e.g., reactions, coordination, motor control, running, jumping, lifting). This evaluation should be coordinated with health evaluation. Areas of special need can be thus identified and met. A record of improvement can easily be kept. A coordinated program of physical development can be set up for individual students. There is no reason to assume that remedial physical education is less important than preventive health. (For some children, it may be as important as remedial reading).

The school program in physical education should provide each student sampling opportunities among a wide range of athletic activities and the opportunity to develop talents in any or many of them through competent coaching and instruction. A program of sampling and introduction to several sports can be combined with the development of basic physical fitness and conditioning basic to any athletic endeavor. Entering students in particular, should have general physical conditioning programs designed to build stamina and coordination as well as a variety of skills peculiar to particular sports or other athletic activities. Every SEC student should have the opportunity to learn how to swim and learn how to skate.

We have already stated that emphasis should not be given exclusively to team sports. Team sports are a commonly accepted part of high school in America and provide valuable experiences for those fortunate enough to participate: students learn the value of cooperation and competition; team participation provides alternative avenues for gaining status and self-esteem (something of considerable importance for certain students unable to do well in the classroom); some students may be able to trade upon their athletic prowess developed in high school to secure further education.

However, many high school athletic programs are run to serve the varsity teams at their convenience and at the expense of athletic programs serving the majority of the students. The varsity teams of the SEC should be very good, but they should not dominate the athletic program.

An extensive intramural program of team competitions between the various houses is envisioned as a basic portion of the athletic program. Thus, a greater number of students would be able to receive the benefits of team competition and the house identities would be strengthened. Intramural competition in baseball, basketball, football, hockey and soccer are possible activities requiring team cooperation. House swimming, track, wrestling and tennis teams could also compete in the intramural program.

However extensive the intramural program, basic attention must be given to developing programs for individual athletic and physical development and exercise. Programs of this type accommodate little space, include the vast majority of students and develop skills and talents appropriate in later life.

Every student should be able to explore a variety of recreational activities new to him or her and able to be continued into adulthood. Such activities which come to mind are swimming, skating, tennis, squash, handball, and golf. Gymnastics seems to us to be particularly important. Team, intramural and individual activities are summarized below:

a) Team Sports. The school will undoubtedly have teams in the following: football, soccer, field hockey, lacrosse, track, baseball, basketball, swimming, wrestling and tennis, hockey and crew.

b) Intramural Sports. The school facilities provided for the above teams will receive their major use from intramural activities. There will be intramural teams in all of the above sports, plus softball, boxing, girls' basketball, volleyball, badminton and water polo.

c) Individual Activities. Ice and roller skating, swimming, boxing, tennis, squash, handball, fencing, judo, karate, archery and golf, plus weight lifting and conditioning.

3. Utilization of Outdoor Space for Physical Education

The linear scheme of the SEC makes available some 20 acres for outdoor athletics and recreation. This should provide ample space for the organization of an adequate and comprehensive outdoor athletic program if it is well planned and if the fields are designed somewhat imaginatively.

Most outdoor athletic activities take place on flat land requiring no major or permanent features. Essentially, all that is required to utilize outdoor space for sports is the laying out of lines and creation of boundaries. What this means is that a given piece of land can serve many purposes. There is no need to have football or soccer fields lay idle in the spring. A foot-

ball field can become a lacrosse field with no major alterations. Baseball fields can be so arranged that the outfields can be transformed into soccer fields. Most sports require goals of some sort. These are generally portable and can be replaced easily. Bleachers for spectators can also be moved if necessary.

Conservation of space devoted to team sports in the above manner can mean more outdoor space devoted to tennis and handball courts or other activities available to larger numbers of students.

The information presented below is based on the above assumption of conservation of space through duplication of usage for both spring and fall activities. The square footage needed for each activity is given in parentheses and the total needed for both is presented in the center column.

<u>Fall</u>	<u>Space Requirements</u>	<u>Spring</u>
main football field (132,000)	132,000	track and field
second football field (68,400)	68,400	lacrosse field (60,000)
2 soccer fields (120,000)	160,000	4 softball fields (160,000)
1 field hockey field		1 hockey field
2 fields for football or soccer (120,000-136,000)	<u>180,000</u>	2 baseball fields (180,000)
TOTAL SPACE NEEDED 572,9000 sq. ft. (16.5 acres)		

This grass area gives a total of seven 'fall' fields and eight 'spring' fields plus the track area. This should be ample space for team and intra-mural sports and for use by students and adults outside the school. It leaves approximately 3.5 acres for hardtop areas outdoors.

All the hardtop areas are used for athletics which take place in both spring and fall. These areas could include 12 basketball courts, 10 tennis courts, 6 handball courts, 4 volleyball courts with space to spare.

Some of these hardtop areas should be near enough to the houses to allow student to use them during their free time in a spontaneous and informal way.

4. Utilization of Indoor Space

During the fall and spring months, both indoor and outdoor facilities will be available for the athletic and recreation programs of the SEC. During the winter, however, only indoor facilities will be available for normal athletic programs and consequently, scheduling problems will be magnified.

Indications are that the State law regarding physical education in secondary schools will require that each student should have 120 minutes of physical education and recreation per week. This could be arranged in three ways: a) one 120 minute period, b) two 60 minute periods on different days, c) 3 - 40 minute periods on different days. Of course, some students, especially these on various teams, will probably use the facilities more than the minimum 120 minutes per week. Therefore, some provision in the scheduling must be made for these programs - above and beyond regular or required activities.

To accommodate such activities plus competitions and team activities by SEC and other students, late afternoon hours can be set aside. The bulk of required programs should be accommodated in the morning and early afternoon hours.

The necessary facilities would include (indoor)

A. Gyms-(2) large gyms-- one each for boys and girls--similar in size and equipment with retractable bleachers (added seating capacity in boys). Each should have a lobby area for use in conjunction with evening competition. Each should be divisible into four stations with the use of movable electric doors. Both gyms should be fully equipped with adequate space and with appropriately placed supporting rooms including two large corrective rooms, home team rooms, visiting team rooms, first aid rooms, administration, teacher, coaches, and officials rooms, 2 class rooms, girls' dance studio, lockers, showers, laundry, towel, toilet areas and "live and dead" storage rooms.

Included should be gym uniform storage -- separate boys and girls facilities -- reasonably separated between the gyms and the field house -- as opposed to separate areas in each facility.

B. Field House-- inside track around the perimeter of the floor. Field events at each end -- 6 lane dash and hurdle area on center of floor -- two teaching stations on floor separated by drop nets from ceiling -- latest rubber or cork covering on floor, rather than dirt. Rooms to be provided will include a weight room and wrestling room, tennis, golf, and handball areas, -- track, varsity, visiting team, officials' instructors' and coaches' rooms -- trainers' room including whirlpool facilities -- two classrooms -- locker and shower facilities for physical education classes separate from team rooms -- sufficient storage space to accommodate physical education classes and all sports equipment -- provide for spectator seating. This type of "all weather" field house servicing the entire Boston Community in a way not presently provided in any recreational facility.

C. Swimming Pool Complex -- (1) Olympic size swimming pool, one diving pool and one shallow pool for the non-swimmer or less skillful swimmer. Sufficient deck space (up to 20') should be provided for warm-up exercises, out of pool instruction, and lounging area. We recommend a sliding type of roof and outside walls to allow for maximum sunlight and out of door environment, separate locker and shower facilities for classes and general public, separate community entrance, check room, towel and suit distribution room, w toilet areas, instructors' offices, equipment rooms, spectator space in the form of a balcony, spectator toilet facilities, maintenance rooms necessary for custodial care of the pool.

D. Skating Area (regulation size for hockey) artificial ice, roof covering, provisions made for year round use by school and community as ice rink, roller rink, tennis courts, dance area, general games area. Home team room,

lockers, showers, toilet facilities -- visiting team room identically equipped, warming area, rooms necessary for operation and maintenance, storage rooms for all equipment used in area, equipment to include "Zamboni" type ice resurfacers

A detailed list of these facilities is described in a latter section of this document (Section V).

Included here is a set of proposed teaching stations to accommodate the regular school program (based on 120 minute physical education program required for each student each week).

A. Gymnasium area

1. Main gymnasium	- - - 4M	4F	= 8
2. Corrective rooms	- - - 2M	2F	= 4
3. Dance studio	- - -	1F	= 1

B. Pool	- - - 1M	1F	= 2
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C. Field House area

1. Main floor	- - - 2M	1F	= 3
2. Weight room	- - - 1M		= 1
3. Golf area	- - - 1M		= 1
4. Tennis area	- - -	1F	= 1
5. Wrestling room	- - - 1M		= 1

D. Skating area	- - -	1F	= 1
23 teaching stations			

Classes based around certain activities and teaching positions will vary in size. Some activities - both instruction and participation - will be more suited to larger groups if up to 30 or 40 while for other students will have to be grouped in much smaller units.

5. Public Use of the SEC Athletic Facilities

Afternoon, evening, weekend and summer use of the SEC athletic facilities will be available to individuals, groups and teams from all over the city and from the local communities.

The superior athletic facilities of the SEC should be designed for general public use as well as for full student use. Separate or additional locker and shelf space may have to be provided. The athletic facilities will remain open and staffed until late in the evening. Lights will be provided

on outdoor fields for night-time sports events.

The athletic facilities will contribute to the magnet quality of the SEC by providing an attractive and comprehensive set of athletic facilities for all people of all ages. The scope and quality of the SEC facilities will draw participants and competitors from all over and provide the local community with the best complex of athletic and recreational facilities to be found anywhere in the city of Boston or in any city. These facilities will be made available to local residents.

It is anticipated that because of the unique and excellent features of the SEC athletic facilities, the school will become a center for city-wide and metropolitan competition and tournaments. This is to be encouraged as consistent with the magnet concept of the SEC and the anticipated role of the school in the city but only provided that these events are scheduled in such a way as not to interfere with the student or other public usage.

Scheduling will have to be coordinated through the Auxiliary Services division (mentioned in Part III-B-5) to guarantee maximum and equitable use.

6. Use of the SEC Athletic Facilities by Other High School Teams

Many high schools in Boston do not have adequate athletic facilities and are forced to go outside the school to use other public facilities for team practice and competition. This is particularly true of swimming and ice hockey. This situation is difficult to remedy for each school due to expense and land shortage. The SEC offers the prospect of alleviating this situation in part through opening its athletic facilities to other high schools lacking facilities and for whom it would be impossible for the city to provide them. Thus, not only SEC teams will practice and compete in SEC facilities --subject to the same conditions cited above with reference to scheduling and priorities.

7. Physical Education Programs for Community and Public

Not only should facilities be made available for public and community use but the SEC should take special pains to encourage physical education programs for the public designed to accomplish the same basic goals as those for SEC students. Conditioning, coordination, physical fitness and health programs are essential not only for high school students but for adults and younger children, also. In the local community especially, younger children will be able to use some of the SEC facilities with considerable frequency and the SEC will be able to contribute to physical fitness before high school age.

To encourage such programs, the SEC will have to either provide the instructional and custodial staff evenings or make arrangements with community groups and agencies to organize the programs, provide the instruction and assume responsibility for running evening programs in the SEC. Both are possible, and perhaps some combination will result.

A particularly useful type of physical education program would be one to train physical education teachers or community workers to help develop children, coach them, and improve their skills.

8. Staffing

We will not attempt here to detail the staffing requirements or offer job descriptions. However, we expect that there will have to be a sufficient number of physical education teachers assigned to the staff of the SEC to staff the indoor stations listed above. Whether some of these will be teachers having other instructional duties in the SEC will have to be determined. However, all physical education teachers -- like all SEC teachers -- will be assigned to one of the Resource Units and spend some time there assisting students.

Also, the figure is for daytime school instruction. Evening and weekend staff -- whether the same teachers or additional ones -- will have to be described later in the planning.

9. Summary

The SEC athletic and recreation facilities will be a major addition to the city's recreation facilities. They will surpass any of the area's facilities in quality and in size and in scope of activities accommodated. To accomplish this will require a large staff, a large amount of money for operation and a tremendous physical plant.

We are designing an athletic and recreation facility not only for a high school program but for use by other high schools, the general public and the local community. Each group needs such facilities; they are presently in short supply in Boston. But to provide adequate and comprehensive facilities for each group independently would be excessively expensive. The SEC facilities will be expensive to run and to build - but in terms of the city-wide need and total role of the SEC, it will be money well spent. The athletic and recreation facilities are an essential part of the magnet quality of the SEC, they are essential also to the integration of the school with its local community, and they serve not only the students but the school in general by being a center for community recreation and city-wide sport events.

G. SPECIAL EDUCATION

At this stage we are not prepared to indicate specifically how many students - who have particular limitations - might be attending the SEC. Therefore, we can make few hard recommendations about facility implications.

We support the theory that as many special students as possible should be welcomed and integrated to the SEC. It is assumed that if such students are able to attend the school then a minimum of special facilities are required for them. Obviously, some care should be given to including handicapped, auditory equipment for the hard-of-hearing, and special materials for students with visual difficulties. Otherwise, such students would be using the facilities of their peers for the most part. Some specialized facilities could be anticipated in each category.

While we will continue to explore the specific needs for most of the students with particular disabilities, we do have the benefit of the Horace Mann School's recommendations for deaf students to be incorporated in the SEC.

The cooperative effort of the Boston Public Schools and Boston University entitled The Horace Mann Planning Project: A Design for a Comprehensive Center and Educational Program for Communicative Disorders recommends

"that learning units be designated within a comprehensive high school as resource areas for high school deaf students. It is recommended that four such units, one in each house, be provided within the new Madison Park Comprehensive High School." Each area would contain a combination seminar size room within which carrels appropriately placed would be found. It would also have a contiguous office for the teacher advisor. This would provide space for instruction, self study, tutoring and guidance within each house for the children with auditory disorders.

It is believed that a total approximately 30-40 children with communicative disorders may reach a sufficient level of educational achievement, communicative ability and personal adjustment to be able to function in high schools with normally hearing peers. However, the Horace Mann center report indicates:

" A majority of children who remain at the Horace Mann School through their elementary school years will probably require a specialized type of high school program. The high school program of the Horace Mann Center will be conducted through satellite classes in a comprehensive high school for the normally hearing. This program is being developed in order that deaf high school students may take advantage of the wide variety of course offerings in the variety of programs available in a comprehensive high school. However, deaf high school students will have a special room that is especially equipped with the necessary audio-visual equipment. Their teacher-advisor will be a teacher of the deaf who will also be their English Language Arts teacher so that they can receive instruction in the English Language Arts in small groups with a curriculum that is suited to their particular needs as deaf children having special problems in language development and usage. The teacher of the deaf will also serve as a resource teacher to provide tutoring in academic subjects and to assist children in developing appropriate study skills. The deaf children would have all of their study periods with the teacher of the deaf in their special room. In addition, deaf high school pupils will have the services of a counselor who has experience with problems of deaf adolescents in making adjustments to a hearing society and to a high school program with normally hearing peers. The counselor will deal not only with the adjustment problems but will also undertake early evaluation of each pupil's vocational and future educational plans. Because some high school age children may be placed in other secondary and vocational educational settings and require supportive tutoring and individualized services at the Center, four resource-seminar type classrooms will be available at the Horace Mann Center, one for each high school grade level, so that high school pupils may return to the Center for specialized services not available elsewhere.

Teachers of the deaf would be expected not only to have appropriate training and experience in the teaching of the deaf but in secondary level English. It is also important that teachers of the deaf maintain contact with all teachers of other courses in which deaf pupils are enrolled. Hopefully, the concept of the Resource Unit will enable such contact to be made more easily

The Horace Mann Center suggests - and we strongly urge- that such students be enrolled in the SEC with all the privileges and responsibilities of any regular student. Deaf students would be assigned throughout the Resource Units and would attend classes in appropriate courses with other SEC students. In sum, deaf students would participate in as many curricular and extra-curricular activities with their hearing peers as individual ability and interest indicates.

It has been recommended that the special classrooms in the SEC allow for such group activities as discussions and dramatizations, and such individualized activities as independent study and use of audio-visual materials. Deaf students should be able to utilize an appropriate type of wireless amplification equipment for maximal use of residual hearing, such as, their own hearing aids, with or without loop system, or wireless headsets.

The Horace Mann Center also believes there should be one teacher of the deaf for each special classroom within the SEC as well as a counselor for each 12-15 deaf students.

Certainly the opportunity for university and hospital involvement in this phase of the SEC is just as great as in the other features of the SEC. Further, the opportunity for the SEC to relate with another unit of the Boston Public Schools, such as the Horace Mann Center, is most encouraging.

In summation, it does seem that the approach suggested for deaf students might well be followed for the visually and physically handicapped as well as for so-called "special class" students. The crucial need would be for an evaluation system to determine when the SEC can serve such students and integrate such students into the overall school program.

COMMENTS

PART IV

Organization of the Secondary Education Complex

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A. Staffing and Administration

I. Overview

A. Basic premises:

The recommendations and rationale which follow are predicated upon the completely attainable and realistic premise that this high school, from its opening day, shall be one of the great secondary schools of America and perhaps the outstanding urban secondary school in the country. The wealth of human and physical resources in this community, the needs and tempo of the times, and the insistent climate for movement and change will make any approach which temporized and settled for less not only grossly inefficient but actually tragic in its ultimate consequences.

The foregoing statement has particular relevance to the subject of staffing because the recruitment and retention of superior people are fundamentally predicated upon the aura of excitement, movement and growth which permeates an institution. A just and reasonable salary scale is essential, of course, but there are other very important factors which will determine the quality of people we can attract and retain, foremost of which is the institution offering leadership and opportunity in attempting to solve the unique and crucial problems which currently confront our society as a whole and specifically the educational establishment.

B. The Urban Quest

It is submitted that this school, properly established and publicized, can attract a faculty, both from an existing pool of excellence within the city as well as from the far corners of the country, that will be unsurpassed in its expertise and dedication.

At this moment in history there is a growing realization that the core city is the focal point in the struggle to adapt our educational system to new and immediate demands. A desire to have a part in shaping the future coupled with a realistic idealism is present, not only in our youth, but throughout an appreciably significant segment of the more experienced personnel.

The key qualification is that these people are willing to move only if they perceive a reasonably flexible and meaningful situation wherein their talents can be fully utilized. For example, the so-called Advancement and similar schools are drawing admirable talent away from the formerly more statusful and lucrative suburban systems.

This is not to suggest that we would recruit individuals imbued with some unrealistic mission of saving the urban schools but rather to strongly state that there is a large pool of great competence, willing and anxious to be part of an enterprise which will intelligently utilize their individual talents in an urban setting.

C. Sources of Recruitment:

Business, industry and many educational enterprises have adopted a working policy of staffing both from within and without their immediate establishments.

The basic premise, of course, is that there must be provision for rewarding excellence from within as opportunity arises, while at the same time bringing in fresh approaches and other experiences from the outside. In full recognition of the talent available within the Boston Public School system, it is imperative here as well as elsewhere, that a policy be adopted of staffing the school with an appreciable number of individuals from a wide range

of geographical and experiential areas. It is not intended to establish an exact ratio but in this new and innovative institution one could substantiate something between a fourth and a half of the beginning faculty being recruited from other sources than Boston. The interchange and fertility of ideas and experiences among this diversity of individuals would be a most valuable aspect in personal and institutional growth for all concerned.

One should be prepared for an increase of turnover as a function of excellence. As industry well knows, emergent talent is lured away by other concerns, and as the program at this school develops, other urban schools inevitably will wish to utilize the fruits of the experiences. This factor, however, is a phenomena of our expanding educational and technological society and is more attractive than the alternative of complete stability which often is related to mediocrity.

D. Roles

The traditional assumption that all teachers have equal competence and versatility in the increasingly complex and varied requirements of the classroom process is not only unrealistic but educationally inefficient and expensive.

The utilization of para professionals is strongly recommended not only as a means for freeing teachers from non teaching duties but as active assistants in the learning process.

In a similar vein, it is proposed that careful examination be given to the scheduled incorporation of apprentice teachers and interns into functions which would not only be good training experiences for the individuals but would enhance the learning of the pupil. There literally are thousands of these bright, young people available each year from neighboring universities. A reassessment

of their roles could benefit the pupil, the teacher and the trainee without exploitation of any.

The employment of a considerable number of community people, including parents, on part-time basis, has never been fully examined. The potentialities and benefits seem to justify a bolder movement into this possibility.

E. Exchanges

A cursory investigation indicates that year-long exchanges of teachers between Boston and suburban or other urban school systems is feasible. The individual experience and the returning benefits to each of the school systems concerned would seem to be of the highest order in both personal growth and interchange of ideas. In reducing oft-lamented barriers and promoting the involvement between Boston and the metropolis, it would be invaluable.

F. Inservice and other training

We shall attract superior teachers in proportion to the opportunities for growth and intellectual involvement. The concept of association of each House with a local university or college suggests great possibilities for the utilization of the facilities and personnel of each in the continuous education of staff members and the necessary confrontation with new ideas and outstanding personalities and authorities in various fields. The potentialities of this relationship are so enormous as to make further discussion here specious. It is assumed that, in this day of urban crisis and emphasis, each of the selected universities would consider the involvement as both an opportunity and an obligation to serve.

II. Staffing and Organization

A. The House Structure and the Resource Unit

As previously noted in Part III of this document the SEC will be divided into four houses of 1250 students each. Each house will contain five Resource Units of 250 students each. The Resource Unit staff would consist of fifteen teachers, one guidance counselor, three para-professionals and one secretary.

B. Teachers

We view teachers as serving two roles:

- service within the Resource Unit,
- function relating to instruction, research and curriculum development.

Almost all teachers would be assigned a home base in some one of the twenty Resource Units. Some teachers might spend a greater portion of their time in the Resource Units than other teachers because some are better able to relate directly to students. Thus, we foresee in the typical Resource Unit ten teachers having immediate concern with students. Such teachers would have ultimate responsibility for the clerical and administrative functions related to a prescribed number of students although of course, much of the actual work could be handled by the para-professionals. These teachers would also be concerned with programming information and related needs of their students. Further, they would supply academic and vocational guidance services as well as form a pool of academic resources for students and staff in the Resource Unit. Finally, such teachers would assist students in maintaining their Continuous Files.

The other five teachers in each Resource Unit would perform other services such as organizing and helping to plan social and athletic functions. Such teachers would spend less time in the Resource Unit and would carry a heavier teaching load or have obligations in a specialized center. Since we are urging that each Resource Unit staff have some freedom to function it might well be that the division of duties of staff members could be worked out by themselves.

It might be well at this point to question the use of the word "teacher" and all that it implies. First, the "teacher" in the Resource Unit is viewed as an advisor and resource person working with students and fellow staff members in a more wide-ranging fashion than traditional home room teachers. Secondly, as indicated in a prior section, the "teacher" in his instructional role is looked upon as a guide in an essentially student-centered environment. Thus the standard concept of an authoritarian - no matter how benevolent - leader is not one we envision for SEC teachers. While we desire to have teachers whose training and experience allows them to be most proficient in their academic disciplines, we are more concerned that the SEC staff place a priority on viewing their roles in the educational process as not confined to the instructional activities in the school building but maintaining close and constant communication with the public. Indeed, it is urged that recruitment efforts center about such a priority.

Often teachers are viewed in rather traditional roles which we have indicated and are not the roles we advocate for the SEC. People tend to consider teaching to be the sole prerogative of those who have obtained college degrees, certain education courses, and some form of certificatio

The SEC cannot thrive if teachers are the only ones directly concerned with teaching. No matter what obstacles have to be overcome - whether school department regulations or legal and labor restrictions - it must be possible for members of industry, business, social agencies and the community to be involved in the teaching process as teachers, lecturers, discussion leaders, curriculum developers. Such participants - be they part-time or full-time, permanent or temporary, Ph. D's or drop-outs - must not be considered as intruders by the "teaching" staff but should join with school-based teachers in the educational endeavors of the school.

C. Guidance Counselors

Each Resource Unit would have one guidance counselor assigned to it. He would be an equal member of the staff and would very much be a resource person for all teachers and para-professionals who have guidance responsibilities. He would also maintain liaison with the office of Student Services. It should be noted that four people - guidance related - might be assigned full-time to the office of Student Services. One person might be a specialist in the area of vocational information and placement, another in the area of academic information and placement. One person might be concerned with testing and another with student problems not directly connected with school.

D. Para-professionals

Each Resource Unit would have three para-professionals and a secretary. It is also urged that others be assigned to the Houses and to the specialized facilities. Our position on para-professionals is further developed at the conclusion of this part of the document. However, it should be noted that in view of the fact that some para-professionals are apt to be unpaid or part time the number of para-professionals in a

Resource Unit is likely to vary. In any event, we would stress that those para-professionals working in the Resource Units should have an equal voice in policy decisions of the staff.

E. Trainees

The Resource Unit lends itself to the training of teachers. Rather than assigning a trainee to one teacher and thus limiting his experience, trainees can be assigned to a Resource Unit staff and draw upon the expertise of many people. The actual allocation of time and people would be worked out cooperatively by the university and school or house or Resource Unit staff.

F. Resource Unit and Bureaucracy

Each Resource Unit should have a leader chosen by members of the unit for a given period of time. He might be a teacher, guidance counselor or para-professional. His work load would be somewhat lighter to enable him to coordinate efforts with the other four leaders in the house and with the Housemaster.

With twenty Resource Unit leaders, four Housemasters and six Coordinators as part of the Headmaster's administrative team, every effort should be made to allow for freedom of action and for initiative within the houses and Resource Units. It does seem of value to have the Resource Unit leaders responsive to the needs of their peers by having them elected for definite terms.

G. Housemasters

Each of the four houses will be administered by a Housemaster who will have the same role and status as principals of secondary schools.

It should be possible for him to function with a considerable degree of independence. For efficiency certain administrative and housekeeping functions should be uniform throughout the SEC, but in the area of curriculum emphasis, staff utilization or university-business cooperation each house should be able to determine its own direction.

The Housemaster will require the facilities and staff associated with the principals of most schools. Specifically, he should have an administrative assistant to relieve him of routine administrative duties. Such a person need not have the status of an assistant principal. Rather, the Housemaster should depend on his five Resource Unit leaders and student leaders for assistance in determining policy.

H. Headmaster

The Headmaster as chief administrative officer should have the role approximating that of an Assistant Superintendent.

. He would have the very considerable obligation of directing and coordinating the four houses and allied and supportive services included in the SEC. He would be responsible for an organization larger than some school systems and oriented to community, university and society itself to a greater degree than most school systems. As chairman of the board, he will be most dependent on his housemasters and coordinators. To be even more responsive to the needs of the SEC he should hold regular meetings with an Advisory Council of staff, students, community and agencies involved in the SEC. Although the Headmaster's duties may be too wide-ranging to allow all to have easy accessibility to him, effort should be made - by location and design of his administrative suite and by the way he functions and publicizes - to give him wide visibility.

In addition to secretarial and para-professional assistance the Headmaster should be aided by two Assistant Headmasters, one concerned with the four houses, the other with the various departments and services.

I. Coordinators

1. Coordinator Relationships: The relationship between the coordinators and the house is a crucial factor. As established in the accompanying chart they are in a coordinating, consulting, servicing function.

Except as the coordinators may act through the Headmaster, they do not have lines of authority directly to Housemasters or House staff.

This is an important and explicitly intended delineation of function. The vesting of direct authority in the offices of the coordinators could destroy the proposed independence of the houses and seriously alter the basic concept of the structural functions.

Obviously the coordinating and servicing roles of the Coordinating offices are essential to the functioning of each House and the establishment of a spirit of mutual respect and cooperation and allocation of responsibility becomes self-engendering since it is necessary to survival, so the question of status and power solves itself nicely.

The prime purpose of the proposed role relationship is to keep the authority, and hence responsibility, decentralized as much as possible so as to encourage initiative and movement at the House and teacher level.

2. Coordinator Functions and Roles

The listings of functions under each Coordinator office are fairly descriptive but need a few words of further explanation:

(a) The Community Coordinator is an unusual function which appears however to have more and more importance and justification as community pressures and demands for involvement become increasingly

evident and as such involvement appears increasingly valuable.

(b) The Personnel Coordinator would serve as a central recruitment, placement, and personnel service office for the entire school.

(c) The Administrative Coordinator's functions are outlined definitively in the chart. It is expected that there are omissions there - in and many readjustments, but the general purpose of function is reasonably evident.

(d) The Curriculum Coordinator's office needs further delineation. All instructional departments are included therein since a coherent whole can only be considered in devising curricula and relating one discipline to another.

The Coordinators are not to be viewed as department heads but rather as agencies for providing central meetings and communication for the curricula and departmental activities of all four houses. It may well be that further exploration of the SEC curricula will result in a change in the structure of academic departments. We would suggest that whatever the structure, the chairman or leaders be appointed or elected within each House. Such spokesmen would maintain liaison and consulting functions with the coordinating office. Again, regardless of what the organizational pattern may be, it is safe to assume that some disciplines will require individual house representation, and some disciplines - probably those taught in both the houses and the specialized facilities - will need only school-wide representation.

As a servicing resource and coordinating agency the Curriculum Coordinator will serve a most valuable function. Again, the traditional authority lines of power are removed not to reduce the status or the importance of the function but rather to encourage the initiative and innovative responsibilities of the teaching staff.

(e) The Student Services Coordinator's office is a logical grouping of Guidance and Pupil Services. The functions listed therein are reasonably established and accepted in many school systems as proper and related.

(f) Research and Development is intended to be more than the listed functions might indicate. Almost any innovative idea in curriculum as well as structure or relationships could be submitted from a House for help, consultation, and ultimate evaluation. School and university relationships would seem a logical function.

J. Paraprofessionals

In view of common misconceptions about paraprofessionals - their qualifications and functions - it seems advisable to elaborate.

1. What is a paraprofessional and who are they

A variety of so-called "paraprofessional" programs exist in the Boston Public Schools and elsewhere. Without attempting to review these programs, it can be noted that under them, paraprofessionals vary from parents of children in disadvantaged area schools to middle class women from the suburbs plus the occasional businessman.

Despite the growing numbers of paraprofessionals in the Boston system there is yet no common tradition of using such people. Most teachers have little experience working with paraprofessionals. Some communities are particularly interested in the use of paraprofessionals; others are apathetic or uninterested. Consequently, paraprofessionals tend to have two distinct images, one that of poor people interested in jobs and/or checking up on the system and the other that of well meaning suburban do-gooders.

In the SEC we hope to have not only a greater number of paraprofessionals but also a greater variety of them. Like the students, we

expect the paraprofessionals to come from every community in the city. Parents may indeed come with their children to school on certain days and stay to work in a house or classroom. Volunteers from the suburbs will be welcome. We expect that businessmen and lawyers, policemen and plumbers will perceive ways in which they can contribute to the educational program of the school. Some will be paid, others will donate their time. Some will be part time, others full time.

Consequently, the definition of a paraprofessional is difficult to determine. Perhaps the best way to describe the genus is to say that they are people recruited to the school who have no formal or certified training in education. This says nothing about the various levels of training or experience in other fields or numerous other variations which may occur. New York City has established a Department of Auxiliary Personnel - which suggests another way to view paraprofessionals.

2. What will paraprofessionals do in the SEC?

Some will teach. The SEC should be flexible enough to recognize and use relevant experience. Lawyers may give special classes. Artists may make themselves available in the Houses, as resource people. And so on.

The bulk, however, will be engaged in non-teaching but closely related activities. For instance, in the houses, the paraprofessionals will be an integral part of the team, relating to children, helping prepare materials, assisting in counseling and so forth, much like teachers. The value of the paraprofessionals in the houses is not so much that they provide assistance to the staff in some of the activities but that they assist teachers in interpreting students' needs, assist students in expressing them and provide another type of adult resource for students

to call upon. This is not to imply that teachers and students cannot relate to one another; quite the contrary. It is to say that some students may need alternate channels of communication and that in some cases paraprofessionals are able to act as intermediaries or in liaison roles. This could be particularly useful in the guidance activities which take place in the Resource Units.

A specific job description has yet to be developed. Whatever the roles of these paraprofessionals in the houses, they will need specific and quite new methods of preparation.

Paraprofessionals in the houses will be involved in activities more related to formal instruction - as classroom aides; tutoring, preparing materials, assisting students and teachers in any number of useful ways. Others may assist in some of the student activity areas (as in the R. U.'s as well) or in the cafeteria or offices. Obviously a variety of roles is possible requiring a wide range of training and levels of experience.

The range of activities in the centralized facilities is so great but as yet underlined in terms of staff that it is impossible now to forecast the types of paraprofessionals that will be needed. However, two general areas will probably require considerable paraprofessional staff; the library and the recreation facilities.

The total number is equally difficult to predict. Yet we can anticipate 3 per R. U. or 60 altogether. Additional paraprofessionals would be assigned to specialized facilities.

To organize --recruit, train and place --this significant portion of the school staff will require a full-time director. He should operate out of the community-student service center.

3. Why Paraprofessionals?

Essentially, one must recognize the fact that new types of people are needed to perform the many new roles required of the SEC staff. One emphasis of this school focuses on changing the role of the teacher. To do this, teachers must be relieved of some of their old duties and they must be given extra time - both within the classroom and outside it.

But no matter how much teachers are able to change, teachers alone cannot perform all the roles and tasks anticipated of the staff. New people must be found to perform these new roles - people who are not trained differently, who do not have fairly set views of their role.

Paraprofessionalism then involves some sort of prior or ongoing training. It is expected that the SEC will not only use paraprofessionals but will train them so they can be used effectively. In fact in some cases, we expect that paraprofessionals will bear more resemblance to interns and in-service trainees than traditional paraprofessionals.

Why bother with all this? First, because of the need for more and varied staff to assist the students in relating to the school. Second, to assist the staff in their new roles. Third, to begin to find new sources of teachers. There is a national shortage of teachers, but few ways of looking beyond the traditional ways of recruiting teachers. Rather than lowering standards, means ought to be found to encourage more young and old people to enter the profession in ways in which they can work toward certification and increasing competence -- and toward professionalism. In other words, paraprofessional may mean preprofessional.

4. Note on Facilities: Since we have included the paraprofessionals as an integral part of the staff, in general we have not indicated any special facilities for the paraprofessionals (except for the central office governing paraprofessionals). This is intentional and consistent

with the above philosophy of integrating staff members. However, in planning the facilities allowance should be made for them in determining staff space and facilities.

III. Recruitment

Traditionally in the Boston Public Schools recruitment of staff is primarily the concern of the central administration (Associate Superintendent in charge of personnel, Administrative Assistant to the Superintendent, Board of Examiners). In view of the magnet concept of the SEC and the enormity and complexity of staffing such a facility, it is urged that the Personnel Coordinator of the SEC be free to direct the recruitment, training and retraining of professional personnel. Obviously, there should be liaison with the School Department officials mentioned above.

A deliberate policy of recruiting some teachers and administrators from outside the system should be employed. Related to this should be a concerted effort to enlist the cooperation of Metropolitan Boston public and private school systems in a long-range exchange program. If some key personnel could be identified in the near future, it might be possible to have them prepare for the SEC by spending some time in the magnet schools of the nation. In turn some of the personnel from these schools might come to Boston to train the SEC staff or to serve as consultants in other phases of the planning period. Since the SEC hopes to obtain close liaison with the local universities it might also be possible to reciprocate with the magnet schools in the nation by furnishing some of their personnel with the opportunity to study or do research in some of the local universities.

In recruiting in-system personnel, it is suggested that some kind of voluntary rotation policy might be worked out with other high schools in the system. In this way the enthusiasm and creativity of the SEC may spread into the other schools. Conversely, staff from the other high

schools - particularly the district schools - will bring with them a knowledge and understanding of particular groups of students in the city.

Much has been said about the geographical composition of the professional staff. Implicit in our thinking, however, is the belief that the SEC staff, including administration, should reflect a truly democratic representation based on age, race, sex and educational background.

It is urged that the Personnel Coordinator be provided with sufficient budget and staff to travel and publicize, and in general direct the recruitment program. He should explore ways of developing reciprocal and certificating procedures with other states, cooperating with the State Department of Education and teacher training divisions of universities.

Relative to administrative personnel the possibility of recruiting some "non-school" people should be explored. It does seem that the qualities required of the chief administrative officers of the SEC parallel those required of corporation executives. An advisory board of businessmen could suggest the names of promising young executives who could be persuaded to serve a tour of duty in the SEC. The benefits to school and business - and to community should be obvious.

IV. Training and Re-training

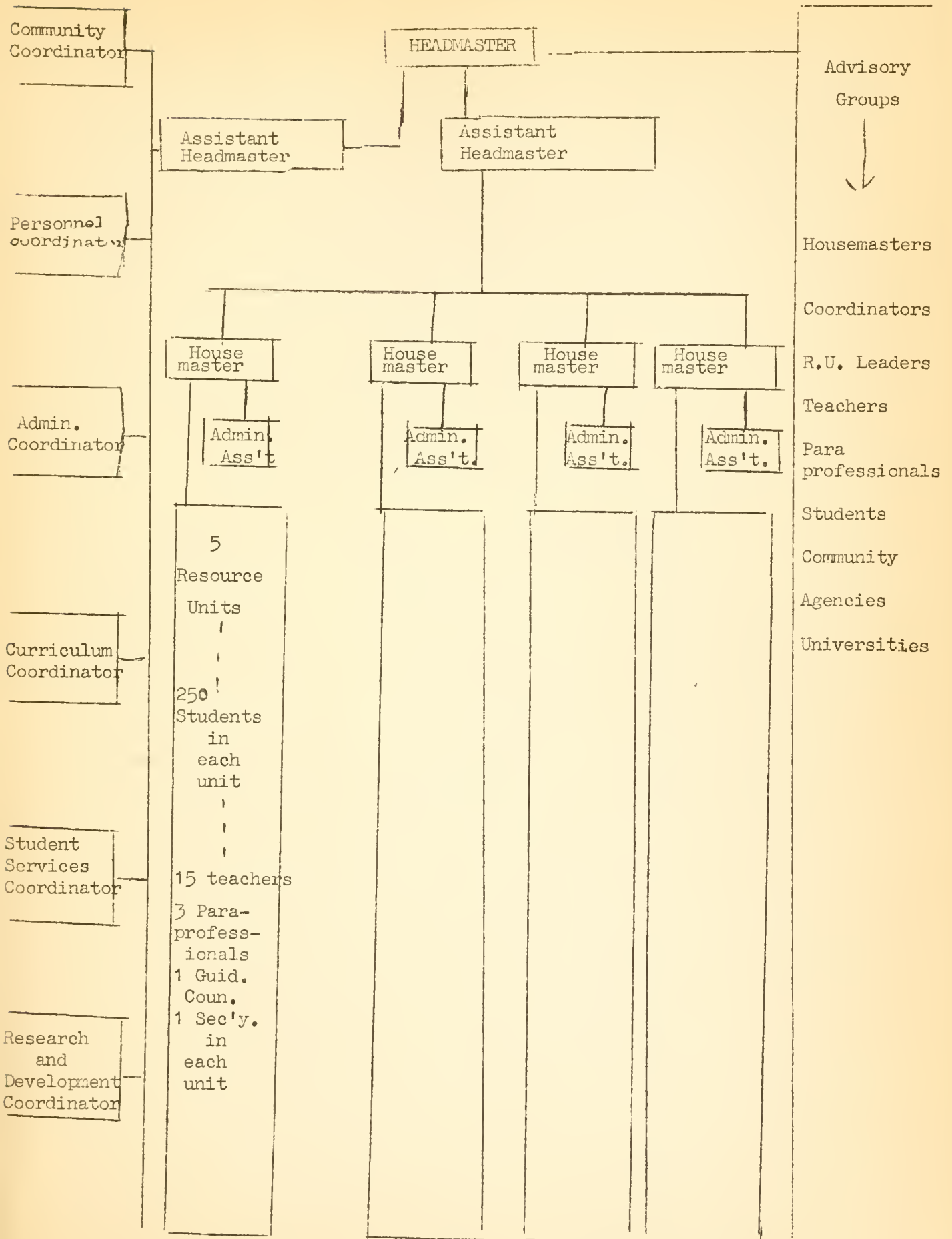
The Personnel Coordinator's office should be responsible for developing programs for pre-service and in-service personnel. The Director of such programs should work closely with supervisory and training divisions in the school system as well as with the universities who align themselves with the SEC. A close relationship should be developed with the office of the Curriculum Coordinator in the SEC as well.

Both offices should have a nucleus of teachers and paraprofessionals assigned to them - not necessarily as members of the training staff but as substitutes for teachers who are taking in-service training or attending curriculum meetings.

Retraining - or updating of techniques - of in-service teachers is the direct concern of the Personnel Coordinator. Training of pre-service teachers should be a less direct concern but his ultimate responsibility. Cooperation with the Community Coordinator is essential to develop a training program for paraprofessionals.

At this stage we are not prepared to specify the actual training program. Suffice it say, a fully developed approach should be prepared with the cooperation of school, community, university and business elements.

HOUSE ORGANIZATION



COORDINATORS: AREAS OF CONCERN

<u>CURRICULUM</u>	<u>STUDENT SERVICES</u>	<u>RESEARCH AND DEVELOPMENT</u>
English	Guidance	Curriculum Development
Social Science	Counseling	Project Evaluation
Science	Testing	In-service Training
Language	Vocational Placement	College Liaison
Math	College Placement	
Art	Adjustment	
Music	Attendance	
Health	Pupil Accounting	
Industrial Arts	Speech - Hearing	
Media Center	Reading Clinics	
	Psychologist	
	Court Liaison	

<u>COMMUNITY</u>	<u>PERSONNEL</u>	<u>ADMINISTRATION</u>
Agency Liaison	Recruitment	Budget
Publications	Training	Supplies
Parent-Teacher	- Evaluation	Data Processing
Community Resource	- Supervision	Food Services
Publicity	- Student Teachers	Custodial Services
Information	- Interns	Purchasing
Paraprofessionals	- Substitutes	Building and Land
	- Records	Maintenance

B. MEDIA SERVICES SYSTEM

Along with the teaching and advisory staff, we see the use of media by students as the heart of the learning process in the SEC.

By "media" we mean anything and everything that carries or stores information, no matter what the form of edrrying or storing may be. The most traditional and omnipresent form of media in most educational processes has always been the book, or at least the printed word. This has been a highly serviceable and important means of storing and transmitting knowledge and ideas, and it will remain for a very long time as the single most important device for this purpose.

But at this point in human history, the printed page itself comes in many forms (paperback as well as hard-bound books, computer print-outs, microfilm, and electrostatic cⁱopes, to name but a few). And in addition to the printed word there is now a host of other "media" that modern technology has made available to us -- still and motion photography, television both live and on cartridge tape, the long-playing stereo record and tape cartridge, the inexpensive print of a work of art, cheap maps, charts, globes and elaborate computerized information storage and retrieval systems.

It could probably be said, in one sense at least, that the learning process consists of establishing a productive relationship between a learner, an instructor or helper and the information media that the student needs to assist his learning. By "productive" here we mean a relationship that allows or encourages the student to explore and learn in a self-motivated way, with as small amount as possible of the coercion of teacher domination or the extrinsic rewards of grades or prizes.

If this is accepted, then one of the major problems for the planning of the SEC program is how to arrange such a productive relationship, and especially; how to organize and make the various media available to students and teachers with the greatest ease and efficiency.

We see this problem as being approached in the SEC and hopefully resolved in four different ways, and thus we see the distribution of media as a system having four connected branches.

The first of these branches is the media section of each Resource Unit. We do not see this kind of media section as extensive or elaborate, but rather as supplemental and motivational. Here, in the relaxed surroundings of the resource unit commons area, there should be a section devoted to newspapers and current magazines, to a collection of interesting and timely paperback books selected by both students and teachers, to a small set of standard reference materials such as dictionaries and encyclopedias, and to a small collection of cartridge film, and television tapes and recordings that can be listened to through headphones. These small media sections (20 in all) should be operated entirely by the students themselves, perhaps with para-professional assistance.

The second category is the house media center, and this is the basic unit of the media system. In addition to the large collection of books and other media, this center should be the basic independent study, research and media production facility for each house, providing study spaces for about 250 students at one time, or about one fifth of the house enrollment. This facility will be described in greater detail later.

The third category is the central media center, again a major unit for independent study and research but now serving the entire school, with a capacity of 500 students at any one time. This would be stocked primarily with books and materials not available in the house media centers, either because they are too expensive to duplicate or too specialized to be needed in the houses. The central media center would act also as the primary supply center for the house centers. This center, which would be available to the public and the local community on a limited basis, will also be described in greater detail later.

The fourth category actually has two parts. One is the small specialized media centers that would be part of those subject areas that will require specialized centralized facilities -- the cultural arts, science, industrial arts and physical education -- in addition to the facilities provided in the house. These media centers, as in the case of cultural arts already mentioned, would be student and teacher operated, perhaps with a single paraprofessional as staff and would handle only those books, tapes, films, etc., that had a particular relevance to a particular subject. These materials would not then be duplicate either in a house media center or the central media center.

The second part of this fourth category would be the highly specialized, probably very small and highly professional libraries connected with each of the departmental centers in the academic zones. The media stored here would be available primarily to teachers for use in in-service training and in the production of departmental materials for use elsewhere with students.

General Criteria for the Selection and Use of Media

The essential character of the media services system recommended for the SEC is defined by the following criteria:

1. All media must be of highest quality and current relevance as to content, even though the format, as in the case of paperbound books, may be modest, economical, and relatively short-lived.
2. It is essential that the different media on a particular subject be assembled together in one homogeneous open-stack area. There should be no artificial separation of media forms for administrative, convenience, tradition, or other cause. All media including A-V resources on a single subject must also be cataloged together. Distinctive symbols should denote various media in the catalog. The user's convenience should be paramount: his time and his enthusiasm for media study and use must be strengthened. The arrangement of resources in the new undergraduate library at Stanford University is a good model here.

3. All media should, so far as possible, be user-controlled for maximum flexibility and educational benefit. Simple, amateur-type, but heavy-duty, A-V equipment should be used. The importance of careful instruction and supervision is recognized. Remotely controlled programs such as dial-access closed circuit TV, are not excluded from this concept. We feel, however, that technological advances such as the TV cartridge tape will render most of these elaborate and expensive systems obsolete before the SEC opens.

4. All media, especially the newer electronic types, should be attractive and dramatically displayed in as many places and in as many imaginative and irresistible ways as can be conceived.

5. Conventional print media will constitute the core of media services systems at least until 1980, by which time the relative importance of print may have declined slightly in favor of user-controlled motion pictures and Video tape cartridges.

6. During the decade of the 1970's newspapers and periodicals, coupled with rapid transmission and copying devices, will assume greatly increased importance. They contain important current information unavailable elsewhere. They are very economical. They appeal strongly to students. The SEC should be in the vanguard of this development possibly by means of electronic links with Boston's leading research libraries. To obtain this advantage the media services system will necessarily subscribe to a relatively large number of periodicals, say 300 or 400, and to at least ten of the important indexes to periodicals, not just to the READER'S GUIDE. Five-year backfiles should be maintained either in microfilm or in bound volumes, including the complete backfile on micro-film of the New York Times.

7. The media services system should have a very strong reference collection. One-thousand titles would be a reasonable opening day minimum. House Media Centers should each contain at least two hundred basic reference titles at the opening of school.

8. Books, particularly paperbacks and other relatively inexpensive media items which are requested by teachers and students and which are in print but which are not presently in the media services system collections should be expeditiously purchased rather than be borrowed from other sources. Readily replaceable course-related items costing thirty cents or less could be given outright rather than loaned to teachers and students.

9. Each administrator and each teacher should be given annually a copy of the R. R. Bowker Company's highly valuable cumulative catalog, PAPERBOUND BOOKS IN PRINT which by 1971 will list between 60,000 and 70,000 books available in low-cost soft-cover editions and arranged by author, title and broad subject.

10. Each student, and each teacher, should be given a free copy of R. R. Bowker Company's fascinating PAPERBOUND BOOK GUIDE FOR HIGH SCHOOLS. By 1971 this compilation will list over 8,000 paperbound works of highest potential interest and value to high school students, all in subject arrangement. Teachers and media advisors should use every effective means to familiarize their students in class with this powerful "leverage" tool and, among other objectives, to motivate their students to build strong personal media collections. Similar action should be taken with the SCHWANN LONG PLAYING RECORD CATALOG and the HARRISON CATALOG OF STEREOPHONIC TAPES. Teachers who have not yet done so should be motivated to build their own home media collections also. This is basic to the media systems concept: the continual surrounding of the individual learner with the best media which our society affords.

11. A large, rich media collection on educational innovation should be attractively displayed in all faculty lounges.

12. The media services system should have capacity for approximately 150,000 media units all of which should be budgeted under Capital Outlay including the cost of contract or in-house cataloging, classification, and processing. Acquisition and processing of media should begin at least two years

before school opening. Purchasing procedures must be simplified and streamlined to the utmost. In many jurisdictions unconscionably complex 19th century purchasing procedures delay acquisition of vitally needed media by months, while at the same time doubling their true cost, and instilling a pervasive sense of defeat in all concerned. This very real and critical problem cannot be exaggerated nor can it be ignored. It simply must be tackled and solved now.

13. There should be a book or media store in each House Media Center which should be operated on a self service basis under the general supervision and control of the director of media services. Each store should occupy a conspicuous wing of its respective house media center thus reducing staffing requirements. The stores should stock all types of information media and culture enhancing objects. Face-out display and discount prices should be the rule.

14. The Toronto Board of Education has proven that electrostatic copying services should be liberally provided to all students -- preferably free or at nominal cost -- for course-related materials. Faculty members should cooperate with the media services system staff to anticipate requirements and to provide adequate quantities of needed items without delaying students.

15. The aggregate space provided for the Media Services System should exceed the American Library Association's Minimum Standards. The ALA Standards will be raised by 1970-1971; extensive A-V facilities are projected for the SEC; many of SEC's students will have inadequate study spaces at home -- some will have none. For these and other valid reasons the central Media Services Center should occupy about 40,000 square feet of space. Each House Media Center will require about 6,000 square feet. 64,000 square feet will be the approximate space required for all components of the media services system.

16. Lighting should so far as possible be polarized and glareless, heatless and unobtrusive. A warm white luminous ceiling might be best. Cold blue-white fluorescent tubes should be excluded. So must the direct rays of the sun on the western, eastern, and southern exposures. Interior colors should be carefully selected. Electrical and other utility ducts should be grouped for easy, economical maintenance. Interior load-bearing columns, if used, should be at least 24 feet apart. Major directional information graphics should be illuminated. In some cases user-actuated animated continuous filmloop projectors could be used.

17. The open stack and display facilities of all media centers should be divided into four broad subject cluster areas: Humanities, Social Sciences, Sciences and Mathematics, and Arts. All related media will be grouped in these areas in such a way as to maximize using-time and minimize searching-and-retrieval time. A media advisor or technician should be available to students at all times.

18. Shelving and display fixtures will probably have to be designed by the architects. Standardized American library shelving, drab, single-purposed and inflexible, will not serve adequately. Moreover, it tends to be unduly expensive and indefinite as to delivery. Mobile "multi-stacks" designed to display all media on each subject are needed. Space requirements should be calculated on a ratio of not more than fifteen volumes per square foot.

19. The central media center should be expandible horizontally in all four directions and vertically both upward and downward. Foundations and the load bearing skeletal structure should be designed for at least a two-hundred percent expansion, including an extra basement, both dry and cool, for preservation of important but lesser used media. The use of interior load-bearing partitions should be avoided or at least minimized. Escalators might be provided to transport large numbers of students rapidly to all open levels in the Media Center. There must be no traffic bottlenecks.

20. Also essential is the optimal use of carpeting, poly-foam, fiberglass, and other modern acoustical materials to absorb as much unwanted noise as possible. Carpet remnants can even be economically and effectively used to line the walls of study carrels. Thus through acoustical engineering normal conversation can be allowed in some areas of the Media Center without disturbing the many students who concentrate best in silent surroundings.

21. Complete control of the interior environment should be a basic design objective. The year round air conditioning system should not only heat and cool but should also maintain optimal humidity and should noiselessly filter out dust, bugs, germs, and other contaminants.

22. The Media Services System as a whole should provide seating capacity for 1500 students, thirty percent of the student population. The Central Media Center should seat 500. Each House Media Center should seat 250. Ninety percent of the student stations should be carrels. Glass enclosed student roomettes should be provided. Carrels should be of various colors and should be placed in varied non-monotonous arrangements along space perimeters affording, if possible, glarefree views of the outdoors. The carrels will require not less than 15 square feet per student. Full size models of several possible roomettes and carrels should be designed, built and tested before adoption.

Specific Space Recommendations for Central Media Center

In addition to staff offices, a generous and suitably impressive entrance area, and areas for technical processing, circulation, reference, bibliography, general media (newspapers and periodicals), and a reading lounge or common reading room, the central media center should have the following specialized rooms:

1. Supervisable, glass enclosed, acoustically treated conference and group study rooms varying in capacity from four to sixteen persons.
2. Twenty typewriting roomettes allowing thirty-five square feet per person with a writing surface in each roomette should be provided at the outset, this number to be increased as experience warrants.
3. Roomettes for viewing and listening to A-V media.
4. A "special collection" room with controlled access for display of rare books and other exotic media.
5. Interior reading alcoves or enclaves each with its own distinctive atmosphere and with some comfortable lounge chairs. Direct line-of-vision supervision would, of course, be necessary.
6. A homelike "club room" containing school and city newspapers, magazine posters, paperbacks, and a stereo phonograph with several headsets, intended for encouragement of students with special reading problems and needs.
7. A book (media) store which would sell not only all forms of media but also build-or-assemble-it yourself kits and acoustical materials enabling students with limited funds to build desks, chairs, shelves, lamps, screens, stereo sets, etc. for their home study.

An over-all list of recommended spaces would be:

Offices

Director, MSS
Secretary
A-V Director
Professional Staff
Production Staff
Clerical
Files

Entrance Area, including checkroom
or lockerettes

Reading Lounge

Reference and Media Advisory Area

Stacks
Visible Catalog
Carrels,
Office
Desk
Reprography

Rest Rooms: 2

Bibliography Area

Stacks
Counter

House Media Centers

In general, the same design criteria applied to the central media center should be applied to the House Media Centers as well. Since these centers are going to constitute the heart of the House activities (outside of the Resource Units), they should be ample in their allotment of space and fully equipped to serve their highly crucial function. In a sense, each of the House Centers is a miniature model of the Central Media Center, except that the House Centers do not have the basic distribution function of the central facility. The House Media Center is responsible for supplying the needs of each of the five Resource Units of the House, but this is a minor supply function rather than basic distribution.

General Media Area

Newspapers
General Magazines
Carrels, 30 @ 15 sq. ft.

Carrels, 410 @ 15 sq. ft.

Special Rooms

Conference, 2 @ 300 sq. ft.
Viewing
Typing, 20 @ 35 sq. ft.
Teacher Preparation
Group Study, 15 @ 100 sq. ft.
Listening, 2 @ 150 sq. ft.
Audio Control

Technical Processing Area

A-V Workroom
Graphics Production
Printing Shop
Photographic Studio
Darkroom
Storage

Circulation Service Area

Counter
Main Visible Catalog
Reserve Area
Media Store
Workroom

The House Media Center should be so located physically that each Resource Unit has approximately equal ease of access to it. We assume that the media center will be used for longer periods of the day and into the evening, both by students and selected adults, so that it will require a physical environment of considerable comfort and amenity.

The basic functions of a House Media Center can be broken down in this fashion:

1. Offices -- quiet and sufficient to provide adequate space for the staff to work in comfortably.
2. General Reading and Study Spaces -- this should include a large reading room, carpeted and equipped with comfortable chairs and tables with chairs, a general media area for magazines and periodicals, and at least 200 carrels scattered in various unobtrusive corners for independent study and research.
3. Technical areas -- these would include the circulation service, technical processing (AV workroom, darkroom, graphics production, storage) and bibliography area.
4. Special Rooms -- these would include a materials preparation workshop used by both students and teachers for the invention or alteration of learning materials (the creation of new cartridge tapes, for instance) a medium-sized conference room (near the director's office), five small typing rooms, three seminar type rooms, and a room especially designed for listening to tapes and records through headphones with an area set aside and sound-proofed for listening without headphones.
5. A Reference Area -- this to include a highly visible and easily accessible system of cataloging, plus the normal reference books and materials.
6. A Media Store -- this would be operated by the students and would sell paperback books, tapes, records and school supplies.

An over-all list of recommended spaces would be:

Offices

Chief, House Media Center
Media Technician
Clerk-Typist

Special Rooms

Materials Preparation Workshop
Conference Room
Typing rooms (5)
Seminar Rooms (3)
Listening Room

General Reading and Study Areas

Reading Lounge
General Media Area
Carrels (200)

Reference Area

Stacks
Accessible Catalog
Counter
Reserve Area
Workroom

Technical Areas

Circulation	Reserve Area
Counter	Workroom
Catalog	Stacks

Media Store

INTER-RELATION OF THE PARTS OF THE MEDIA SYSTEM

Since the media services system is a system, it has a distinctive pattern of operation, a system of flow for materials and people, a distinct set of relationships among the various parts.

Basically we see the system operating on a feed-out pattern from the Central Media Center. All media materials arriving from outside the SEC flow into the logistical support level of the SEC and are delivered to the Central Media Center. (This is exclusive, of course, of any materials brought in by the students or the teachers directly to the Resource Units). On the basis of either a request or assignment, materials are processed in the main center and distributed to the four House Media Centers and the specialized media facilities. Decisions are then made on the House level concerning distribution from the House Media Centers to the Resource Units.

This outward flow has a reverse pattern as well. Materials no longer needed or relevant to a Resource Unit flow back to the House Media Center. Materials not needed in the Houses flow back to the Central Media Center.

Decisions about what is offered for sale in the Media Stores are made at the appropriate level -- the Central Media Center runs the Media store connected with it, the Houses run the House Media Stores.

Clearly, this is a highly complex operation, one that is not going to run smoothly without considerable thought and experience on the part of everyone connected with the SEC, including the students. And there are as yet many questions unanswered -- such as the relationship between these various media centers and the public, the relationship between the SEC media system and local branches of the Boston Public Library or with college and university libraries and information systems. These questions will be answered in the course of the future SEC planning.

STAFFING

A media services system is far more than just a conventional library. It provides a great many more services to teachers, students and the public. It provides a much greater variety of different kinds of learning materials. It is involved not only in the acquisition and distribution of materials but also in the production of materials -- the creation of audio and video tapes, printed materials in original or copy form, the copying of pictures, charts, maps, photographs.

A media system is thus a far more complex operation than a conventional library and requires a more highly trained and considerably larger staff, even discounting the fact that this system will probably constitute the largest single collection of media in the city of Boston, short of the Boston Public Library itself.

Although we have not as yet worked out the staffing needs in detail, it seems clear that the SEC media system will require personnel not now commonly employed in school libraries. In addition to a director for the entire media system, each house should have its own assistant director of media to operate

the house media center. Both the central media center and the house centers will need media technicians to handle the preparation and organization of media materials. There will be a need for clerks to handle the acquisition and distribution of materials, as well as clerk-typist for handling the paper work. It may also require the services of a photographer and a graphic artist.

The determination of exact needs in the staffing of the media services system will be worked out as part of the future SEC planning

MEDIA SERVICES SYSTEM

SUGGESTED STAFFING TABLE

(excluding student media assistants for shelving, shelf-reading, circulation service, etc.)

<u>Function</u>	<u>Title</u>	<u>Number</u>
Administration (Central)		
	Director, Media Services System	1
	Secretary	1
Acquisition, Cataloging, Processing (Central)		
	Chief, Acquisition, Cataloging, Processing	1
	Media Technician	1
	Clerk-Typist	1
	Receiving Clerk	1
Production (Central)		
	Chief, Media Production	1
	Photographer	1
	Graphic Artist	1
	Clerk	1
	Clerk-Typist	1
Utilization (Central)		
	Chief, Media Center, and Media Advisor	1
	Media Subject Specialists, Center	2
	Media Technician, Center	1
	Clerk-Typist, Center	2
Utilization (Four House Centers)		
	Chiefs, House Media Branch (1 per house)	4
	Media Technicians (one per house)	4
	Clerk-Typists (one perhouse)	<u>4</u>
	Total	29

MEDIA SERVICES SYSTEM

SUGGESTED MEDIA COLLECTION CAPACITIES

(excluding resource units)

<u>FORMAT</u>	<u>CENTRAL</u>	<u>HOUSES</u>	<u>TOTAL</u>
Books			
Reference	1,000	200x4	1,800
Bibliography	200	----	200
Rare	100	----	100
General	57,900	15,000x4	117,900
(<u>Note:</u> Hardcover 10%			
Rebound PBs 40%			
Reinforced PBs 50%			
Periodicals	400	100x4	800
(<u>Note:</u> One-third of these			
titles to be bound. All to			
be micro-filmed.)			
Index Services	10	----	10
Newspapers	12	4x4	28
(<u>Note:</u> Microfilm after 90 days)			
Tapes ($\frac{1}{2}$ per student)	2,500	150x4	3,100
Phono-discs (2 per student)	8,000	500x4	10,000
Motion Picture (cartridge)			
16mm	500	----	500
8mm	1,000	----	1,000
TV tape cartridges	1,000	500	1,500
Filmstrips	2,000	----	2,000
Slides			
2x2	10,000		10,000
$3\frac{1}{4}$ x4	3,000		3,000
Pamphlets			
Photographs			
Documents			
Microforms			
Maps			
Newspaper Clippings			
Prints			
Globes			
Dioramas			
Realia			

NOT ESTIMATED

IV. C. CURRICULUM OFFERINGS IN THE SEC

1. Introduction

The subject offerings proposed for the Secondary Education Complex when it opens in 1972 will in all probability not differ in name from the customary Language Arts, Social Studies, Foreign Language, Mathematics, Science, Industrial Arts, Home Economics, Business, Performing and Visual Arts, Physical Education, and Health subjects that are offered in most up-to-date comprehensive schools. However, by 1972 these course offerings may well have a considerably different meaning and will comprise vastly different sets of materials, pedagogies and contents than the present titles connote. It is also possible that as 1972 nears, there will be a need for revisions in the names and organization of some of the course offerings.

These developments will occur in all secondary schools and not exclusively within the SEC. The changes will come about for a variety of reasons, e.g.

- the tremendous current interest in new curriculum development generated within and across school districts, at the college and university levels and among commercial and non-profit educational agencies;
- an interest in developing new criteria for the evaluation of curriculum innovations and a growing acceptance of the value of dissemination of ideas;
- vast and unpredictable strides in educational technology and media systems to support the process of learning; and,
- the increase in the sheer quantity of knowledge and information and the quality and economy of large scale information storage and retrieval systems.

Entirely new areas of study will be introduced into schools, and the scope of materials available even within existing disciplines will be increased and altered. The environment within which students are assembled and the methods

by which they learn will undergo considerable change. Therefore in planning the curriculum program for the SEC, the following implications must be mentioned:

- a. The changes listed above are taking place and will continue to take place regardless of the curriculum attitudes of the SEC planners. The implication here is that continual thought and indeed actual involvement in educational innovations affecting curriculum development are essential within the Office of Program Development and within the Boston School System in the three years prior to school opening.
- b. The ability to adapt to change and to properly evaluate its educational program must be built into the SEC (and into any secondary school if it is to remain contemporary.)
- c. The SEC is being planned in a quite different way from the way most secondary schools have been planned in the past. Through the Advisory Cabinet and the development of close relationships with colleges, universities, business and industry and community people from all over the city, we have attempted to engage the interest and talents of many different kinds of people and agencies. We see this kind of interest and the input of this kind of talent as continuing throughout the entire development phase of the SEC and continuing on into the actual operations of the complex. This interest and input applies not only to the facilities but to the SEC program and curriculum as well. Again we cannot predict what this interest and input will provide, and this makes it doubly difficult to specify just what should or should not be included in the curriculum offerings.

Given all of these possibilities for change between now and the opening of the SEC in 1972, it is clearly most difficult for anyone to predict what the SEC's curriculum will be. What follows here is thus an attempt to set down

some broad and very general guidelines, based upon our best knowledge at the moment of what a 1972 curriculum might well look like. In order to provide a basis for facilities decisions (which must be made now so that the architects may do their job), we will often be talking in language that makes the curriculum sound very specific and set. We do not intend that the specifics mentioned here be taken as unalterable over the next three years. They should be thought of, rather, as examples developed in order to make space allocations on some reasonable basis.

We are assuming that all of the spaces referred to here -- at least those that do not require permanent, fixed design and built-in equipment -- will be alterable, either through the use of operable partitions, walls that can be moved with comparative ease or acoustic treatment (including carpeting) that would allow only visual space dividers, so that the school may change its space arrangements as its program changes over the years. It would be folly to build space that cannot change, since we expect this building to last for many decades into an unpredictable future. This is particularly important in what we are calling the "academic Zones," that is, the spaces devoted to those subjects, such as English, social science, math, foreign languages (exclusive of language labs) that can get along with a minimum of permanent, built-in fixtures.

2. STUDENT POPULATION OF THE SEC

Since the SEC is to be a comprehensive secondary institution, it will house a cross-section of the secondary student population of the city as a whole. Our research has indicated that, based upon recent follow-up studies and present course choice of Boston High school students, students at the SEC should be admitted roughly in accord with the following break-down, if the city-wide cross-section is to be maintained:

a. College-Oriented --

50%

These would be students who, by the end of the eighth grade, have already decided that they want to go on to some form of post-secondary

schooling. This would include many student who under present circumstances would be attending other schools. Most would be students who have achieved some measure of success in the present system. They will probably have a satisfactory achievement record and think of themselves as "college material." But it would also include students who want to go on to college but whose previous records indicate that they are not yet equipped to do so.

b. Business Oriented --

25%

These would be students who, at the end of the eighth grade, may have decided for various reasons that college is not for them and who therefore plan to enter the business world at the end of high school. We would hope that many of these students would end up taking some form of post-secondary training, even though they might still enter the business world after that further training.

c. Vocationally Oriented ---

13%

These would be students who, as they emerge from grade eight, feel that they are candidates for the trades, including many students who may have academic talent but have never displayed it. Some of these students may have a record of considerable failure in school and be convinced that basically school is not for them. We would hope that many of these students would become convinced as they go through the SEC that they wish to go on to post-secondary training, perhaps of an advanced technical nature. Many of these students may, in their third and fourth years, spend part of their time in the Occupational Services Center.

d. Potential Drop-outs --

10%

These would be those students who, at the end of the eighth grade, are completely negative about school and planning to leave as soon as they are 16 years old. For those students, the SEC must provide programs that are radically different from what they have come to think of as school.

d. Handicapped Students --

2%

These would include students afflicted with speech and hearing difficulties (including students from the Horace Mann School for the Deaf) as well as physically handicapped and perhaps special class students.

It should be clearly understood that foregoing categories and their attendant percentages are not in any way a suggestion of the placement or retention of incoming students in "tracks." The entitlement of "college oriented" "business oriented" etc., is merely an attempt to reflect the composition of student body as it presently views itself. We strongly emphasize that each student should be programmed with an individual set of educational offerings suited to his needs, abilities and aspirations.

3. A GENERAL ORGANIZATION FOR THE CURRICULUM

In previous parts of this document we have outlined the basic goals and objectives of the SEC educational program. It might be useful here to summarize these aims briefly, so that we can then proceed to be more specific about how these aims will be carried out in the curriculum and operations of the school.

We see the SEC as having the following objectives:

- to serve a comprehensive cross-section of the secondary school populations of Boston.
- to provide the city of Boston with a magnet or catalyst school that will act as a means of improving education in the city.
- to provide the comprehensive, 5000 student body with an educational program that encompasses all of the talents and abilities of all of its members. Every kind of student should be able to find a program in this school that meets his needs and desires.
- to therefore provide a multiplicity of options, a wide variety of course offerings dealing with many different topics at differing levels of difficulty and employing different styles of learning on the part of students.

- to provide each student with a thorough mastery of all of the basic skills necessary for contemporary life -- and this means basic skills, such as reading, writing, computation, etc. It does not mean that every student will necessarily take a full four years of English, math, etc.
- to encourage students to take an increasing responsibility for their own learning, to be increasingly able to make their own choices and decisions about what to learn and to spend larger and larger amounts of their time in independent study and independent activities.
- to get students involved in their city and their community, in programs of social action and civic improvement and in programs with business and industry and surrounding colleges and universities.
- to enable each student to explore his interests, to properly assess his talents, and to pursue his individual and creative abilities in great depth and in almost any area of concentration.

In order to achieve these objectives, we have provided an over-all organizational scheme that breaks the SEC down into three general categories or units:

a. The Resource Unit

This is the basic building block of the SEC scheme, providing a home base for 250 students and roughly 15 teacher-advisors. This is primarily a counseling and unscheduled activity unit, the place to which students and teachers repair when they are not occupied in their scheduled activities. There will be 5 Resource Units per house, or a total of 20 for the entire school. Here, in addition to a commons room space which also houses the small Resource Unit media center, there should be offices for the interdisciplinary team of teachers, for the guidance counselor, for the para-professional aides, for visitors; i.e. parents, academic and business-industry people, space for the laboratory-workshop and three small seminar-conference rooms for small groups, private study and typing.

b. The House Unit

There will be four of these, each housing 1250 students and a staff of approximately 65. In addition to the five Resource Units, a House will contain the academic spaces (including specialized space for science, industrial arts, business and home economics) necessary for all of the 1250 students, except for the central and specialized facilities listed in the following section. In addition to the academic spaces, each House should contain the House Media Center, a 250 seat theater-auditorium, and administrative offices for the staff not housed in the Resource Units. These should include one of the more interesting departures we advocate for this school -- the departmental centers. While the Resource Unit teams will be interdisciplinary in their composition, each of the conventional disciplines needs a director (or chairman or head of department) who coordinates the activities of the various teachers in his discipline. Each of these heads of departments should be housed in a departmental center which should contain the office of the head, a small conference-workroom for meetings of the department, for the preparation of special material and for the housing of the small professional library for the department staff. Immediately adjacent to the departmental center (and operating as a part of it) should be the department laboratory -- the room, equipped with the special tools of the discipline, to which students can come for semi-independent work under the direction of the head or members of the department. There would be five of these departmental centers in each House -- Language Arts, Foreign Languages, Social Studies, Science, and Mathematics. The departmental centers for Industrial Arts, Home Economics and Business would be integrated with the special House facilities for those subjects. Cultural Arts and Physical Education, which will operate on a more school-wide basis, would have their departmental centers in the Cultural Arts and Physical Education Centers.

c. Central and Specialized Facilities

These facilities are centralized for a variety of reasons -- they are too expensive to be duplicated in each House and/or they would not receive sufficient use if they were duplicated; they serve the entire school and thus could not appropriately be placed in one House. Whatever the particular reason may be in each case, these programs and facilities will be used by all of the students as it is appropriate for them to use them. In some cases, such as the science labs and the central media center, they will primarily be for advanced students who have outstripped the resources available in the Houses. In other cases such as Cultural or Industrial Arts, they will be used by students with special interests and talents. We see these central facilities as falling into the following basic categories:

1. The Central Media Center

(described in a previous section)

2. Specialized Instructional Spaces

Science -- laboratories for advanced and specialized subjects.
Industrial Arts -- specialized shops with heavy and expensive equipment.

3. The Computer Center

This will house the SEC's computer, which will operate as an adjunct to the school system's data processing center. In addition to performing many of the SEC's guidance and administrative chores, the Computer Center will also operate as an instructional device in computer programming, data processing and the general applications of computer technology.

4. Cultural Arts

(described in a previous section)

5. Physical Education

This special complex, closely connected with the playing field area, will house the gymnasias, the field house, the swimming pools and the various courts.

6. Central Administration

These facilities will house the offices for the SEC's headmaster and administrative staff, central guidance, the curriculum coordinators, the school information staff, etc.

This should be closely tied in with the public concourse and be the main access to the academic component from other parts of the SEC.

7. Logistical Support Facilities

Although these will be treated in detail in a separate section (since they involve the entire SEC and not just the academic component), we should mention here that food preparation will be done in a central kitchen and distributed to the Houses.

4. SPECIFIC CURRICULUM OFFERINGS

The following descriptions and guidelines for the SEC's curriculum, subject by subject, are designed primarily to provide a basis for space allocations. While we consider the space requests to be firm, the curricular offerings themselves may change in the course of future planning. Space requests are included under Section V - "Facilities".

a. LANGUAGE ARTS

Comprehensively, the field of language arts is responsible for developing the basic skills of reading, writing, speaking, and listening and for carrying these to the highest possible level of rhetoric, logic, and aesthetics. It must examine the phenomenon of language within a broad spectrum that extends from acquiring command of a socially accepted dialect of understanding the historical, philosophical, and scientific probings of modern linguists. It must explore human nature by involving the students in literary and oral production and in close examination of accepted works of art. It must join the other arts and sciences in examining the "humanities" of Western tradition and, if possible, of other cultures. Finally, it must develop sophistication in the mass media of film, TV, and journalism.

In order to carry out these aims, we see every student in the school being involved in language arts in some form throughout his entire career in the SEC. This does not mean that every student will necessarily be enrolled in a "course" or a set series of courses throughout the four years. Rather, we would intend to develop a series of alternatives that would allow different students to explore different kinds of language arts programs as they attain mastery over the basic skills and begin to discover particular areas of interest or unique ability.

During the process of acquiring the basic skills, we see student interest maintained through a broad program as the language arts program branches out to include literature, public speaking, dramatic production, linguistics, creative writing, journalism, mass media studies and interdisciplinary work arising out of the interdisciplinary teams in the Resource Units. Many of these studies would be elective, some as specialized as courses adapted to students interested in specific preparation for college board examination, or in secretarial skills, or in editorial work.

We would begin the language arts program with the "sampling" or introductory period that every student new to the SEC would undergo. This sampling period would involve, along with an opportunity for the student to get to know the school and its wide variety of offerings, an elaborate series of tests and diagnostic counseling interviews designed to help the student and the staff discover the student's skill level, specific needs and specific areas of interest. Out of this process would come a consensus among the staff, student, and his parents as to the program in the school best designed to suit the student's need. (It should be pointed out here that this sampling period applies not only to the language arts but also the the student's entire program.)

We assume that one of the primary tasks of the SEC is to make sure that every student acquires the necessary basic language skills that will enable him to perform competently in whatever field he chooses for later life. We assume with equal fervor that there is no one magic way for all students to attain these basic skills. We also assume that there will be many students who will come to this school with the basic language skills already within their command. For this group of students, the language program would begin with the assumption that having completed the basic skills work, they could be encouraged to move quickly into other and more advanced areas of language arts work.

By "basic skills" here we mean the skills of reading, writing, speaking, and listening. Competence in these skills would be measured by a variety of means, but essentially we would be aiming for competence at the level of national norms for a particular student's age.

In order to provide the basic skills for those who need them, we propose the creation of a skills laboratory program. There would be one skills laboratory per house. Students who require work in this area would be scheduled into the skills lab for varying periods of time, depending upon their need. In some cases, this might mean as much as two hours a day. For others it might mean as little as one or two hours a week. The skills lab should accommodate a maximum

of 50 students with provision for acoustically private areas for the small group instruction essential for remediation. The skills lab would be equipped with a variety of materials -- books of high interest but less strenuous reading levels, magazines, programmed and perhaps computerized instruction, machines for teaching visual discrimination, etc. - and a special staff. The atmosphere would be comfortable and informal, with teachers and students working individually or in small groups. The skills lab should also be equipped for dramatic improvisation and the informal production of short plays or scenes from plays. We would require four seminar rooms with acoustic privacy for seminar groups and small group listening, a conference room equipped as a teacher resource area and professional library, and an office for the chairman of the house language arts department.

In addition to the skills laboratory area, which would handle the reading instruction, there should be a special speech laboratory to take care of speech defects, dialect problems, and the teaching of English as a second language. This should be set up in the manner of a language laboratory equipped with machines for recording and the playback of the spoken word.

We see the space of the language arts section of the Instructional House as these: 1 Skills Laboratory to contain

- 1 conference room with professional library and resource work area
- 1 private office for head of the language arts department
- 1 storage area
- 4 reading labs of seminar size with adjustable walls for expansion
- 1 individualized study room with specialized library, AV equipment, carrels, tables, etc. for remedial and acceleration practice. There should be space for tutoring in study skills.

1 Speech Laboratory to include

- 2 speech seminar rooms

1 language laboratory. By 1970 language lab equipment of the type used in the instruction of foreign languages will probably be adapted or developed to correct non-standard speech

1 storage area for AV equipment in use and props for small drama experiments

1 rehearsal room of classroom size for improvisation and small group drama work

6 learning areas adaptable for large group and seminar size groups. These areas will be used for the humanities, literature, composition and linguistics instruction

1 storage and work area for AV material in use and for student books. Although the new curriculum will not revolve around traditional "sets" of texts, adequate storage must be provided for small sets of such books which will differ in kind and quantity from regular library books.

Space is also needed for paper supplies, records, etc., used extensively in the composition and humanities program.

1 student publications workshop. This would be the school publications office, directly related to the work in journalism. This does not mean that a large publications office might be located in the administrative area, but this is for the student work in a specific house.

Although the specialized areas listed first are designed to provide the best possible instruction in the basic skills, it must be pointed out that a great emphasis in the language arts area is in the field of literature and the humanities. In addition increasing emphasis is being placed on the development of sophistication in the mass media of film, TV, and journalism. These objectives do not require the specialization demanded for skills and speech work, for these can be achieved in the learning areas adaptable for large group and seminar spacing. They do demand an understanding that the technical support for such language arts projects as film-making must be provided through the film production studio planned in the cultural arts area and that the auditorium of the house be scheduled with the drama productions of the department fully accommodated.

b. History and Social Science

We are dropping the name "Social Studies" because we feel that this general field more logically breaks down into the closely intertwined fields of history and the social and/or behavioral sciences.

We feel that the curriculum in history and the social sciences should be both a study of and an involvement in the real world (both past and present). We feel further that students need to experience a sense of the inter-relatedness of historical knowledge and the knowledge to be gained from the study of contemporary societies through the social sciences.

Social Science

If we seek to institute a reasoned approach to social phenomena, then we think it is fair to insist that the critical building blocks be economics, psychology, sociology, anthropology, and political science (or civics).

There seems no intellectual reason why young people cannot have a far more sophisticated understanding of economic institutions and processes than they presently have. And it hardly needs be added that such an understanding will offer them great increments both in their own personal lives and in their public lives.

An economics course might include money and banking, some marketing, some tax policy, and some macro-theory.

Psychology is included both because adolescents tend to be interested in it, and because their interest makes a good deal of sense. A psychology course, which would help to explain why people behave in curious ways, why it is sometimes difficult to communicate with one's parents, and sometimes even with oneself, why we cannot always explain how we came to behave in **certain** ways, and so on, would encourage our students to introspection and would offer them a greater chance for self-control, and, therefore, for self-expression.

Sociology provides an understanding of group life, and particularly of

cultural differences. It insists upon understanding and appreciation as preconditions for evaluation. Hence tolerance, and even empathy are key values implicit in the discipline. Any sociology course we contemplate should surely pay primary attention to racial groupings, and probably also to ethnic groups in the United States.

Since sociology by habit and tradition turns its attention most strongly to the study of contemporary complex societies, it is equally important for students to become acquainted with the insights generated by the study of anthropology, which offers a broader view of man's experience on this planet and which has tended to deal with non-literate and more exotic societies. Anthropology, in a sense, might be considered the fundamental social science in our context, since it attempts to deal with human societies as wholes and thus includes or touches upon the subject matter and methodologies of all of the social sciences, as well as history. It also tends to do this through the study of simpler societies, thus making it more possible for students to untangle the multitude of strands that woven together make up the seamless web of the human culture. Anthropology also extends its interdisciplinary net outside the social sciences, entering the field of biology, for instance, in the study of the causes of man's evolution within the primate order.

We have here adopted the terms political science to replace (or to be used along with) the term "Civics", since again we feel that this vital area of human endeavor should be treated as a science. It is important, we feel, that students be provided some intelligent description of how decisions get made and enforced in a modern society (especially their own), how conflicts arise and are resolved or not resolved and of how power is gained and exercised.

It would not be possible to emphasize too strongly that when we speak of "courses" or disciplines in social science we are making no attempt to define specific areas of subject matter that must be covered in a specific amount of time. These disciplines are too broad and comprehensive to be

chopped up into neat pieces. There is also a considerable amount of overlapping that leads inevitably to inter-disciplinary work.

What we are most interested in and concerned about is not the specific subject matter of social science. If at the end of these studies we have communicated only the substance of social science, we have only done half the job. We are far more interested in the development of the thinking capacity of the students, their ability to separate fact from opinion, to build and test hypotheses, in short, we are most interested in the development of cognitive or intellectual skills as these can be brought to bear upon human problems and the human situation in general.

This, of course, goes hand in hand with the way these "courses" should be taught. We feel strongly that these should not be passive, book-oriented experiences for the students. Rather, they should learn social science by doing social science. Much of their work in sociology, political science and economics, for instance, should be done out in the field, making surveys and taking opinion polls, performing case studies in how things do or do not get done in this complex contemporary society called urban America.

We see social science as developing certain specialized skills (e.g. locating and gathering information, introducing group process and problem-solving techniques, and interpreting maps, globes, and charts.) The development of critical thinking should be the main focuses of the social studies curriculum. Specific types of activities to be carried on within the social science and history zone would include: class discussions, lectures, debates, mock trials, roundtable panels, group sensitivity training, legislative assemblies, small group and self-instructional work projects, extensive use of audio-visual aids and reference materials, reading and seminar courses for the academically talented and for the less able student individualized instruction and the development of reading skills.

At the present time, we do not expect that every student in the SEC will be taking "courses" in social science disciplines such as anthropology,

psychology, etc. We see the specific offerings in these subjects as electives, probably taken during the last two or three years of attendance at the SEC. What we are specifically proposing and hope to develop with the assistance of university people between now and the time the SEC opens is two years worth of broad and general Social Science materials, developed around basic social problems and drawing upon all of the various social sciences as they are relevant to the topic. Many of these materials and topics would be built around studies of the cities and urban problems including the examination of real situations and possible solutions for real problems.

The two years worth of materials might end up being sequential, that is, Social Science I might be a broad introductory course, while Social Science II might be the further and more sophisticated pursuit of topics begun in Social Science I. Students who develop particular interests in the social sciences out of either or both of these courses could then elect to continue in the discipline-oriented courses in later years. Social Science I would probably be required of all students.

History

We see the conventional discipline of "history" as a strong and continuing part of the over-all program, modified to the extent that it will coalesce frequently with the social science program. Essentially these two parts are and must be closely related to each other. Thus, much conventional history, such as what is generally thought of as Ancient History, would be presented in conjunction with anthropology (the study of evolution and early man, the farming and husbandry revolution, the origins of urban life, all of which have traditionally fallen within the field of anthropology and archaeology, would obviously be now presented as a meld between social science and history.

Similarly, American History, which must be taught as a subject according to law, is vastly important but would benefit from a strong infusion

of economics, political science and sociology especially a strong infusion that would concern itself with the history of the Afro-American and the origins of this form of civil strife in this country.

Again, it might make sense to think of the discipline of history in a fashion similar to the specific disciplines of social science, that is, as a group of courses (elective except for American History) that would follow the introductory social science courses. This group of offerings, in addition to the American History course, might include Far Eastern history, European history, African history and a World History offering that would not be a survey course but would deal with specific problems, common to all human communities which have been dealt with in different ways in different parts of the world.

Again, we would like to stress that the study of history is not viewed as the storing up of an endless succession of dates and other facts, but an understanding of the historical process, of how things change over time and an attempt to discern what some of the rules are that govern the way things change.

We also see a considerable amount of this work in history and the social sciences, especially advanced work, as being performed as independent study, both in the media centers of the JEC and outside the school.

Space Requirements

Although it is difficult to predict exactly what the student choices will be in the area of social science and history, our best estimate at this time would be that at any one time, approximately 70% of the 1250 students (or about 900) in a house would be involved in this program (and we are assuming that except for very advanced students who would need to spend much of their time in independent study in the central media center, all of this activity would be centered within the Houses, even though much of it might take place out of the school in the field).

Except for the departmental center and the social science and history

laboratory attached to it, we do not at the moment see any special faculty requirements for this program.

The social science area as we envision it would be a cluster of classrooms comparable in many respects to ones used for most academic subjects and grouped into a suite. Each classroom would be sufficiently large to be sub-divided and separated by "movable" visual dividers into conference-work rooms. These latter facilities could be used as special interest and need centers and/or project-laboratories for small groups of 8-10 in seminar and listening processes or even smaller groups more actively engaged in individual research. Work benches would be available with storage space below and wall cabinets above.

We would suggest, too, that the language arts and foreign language classes be in close proximity to the social studies areas. Thus, all of these classrooms could be grouped around, and have easy access to, the Social Studies Departmental Center since the functions, materials and equipment requirements will in many cases overlap or complement each other. The Departmental Center would include office space for the Department Head, a conference-work room, and professional library for teachers, reading and study carrels, display facilities, storage space, and the adjacent departmental laboratory to include a reference resource area, work benches, a photo lab and access to aural-oral language machines and facilities. All of the foregoing would then be integrated into an "open-ended" multi-purpose activities unit. A small lecture theater with a stage area, in no way intended as a substitute for an auditorium but having its own specific individual use, should be an integral part of the Center accommodating about 100 pupils with a minimum of movement. As an instructional tool, it might be used in any of the following ways: lectures; demonstrations; dramatic representation; audio-visual programs; a practice room and an assembly space. It would also provide a convenient flow from one activity area to another. This lecture space might be shared with teachers from other disciplines.

A standard class unit would vary from a maximum of 25 to a minimum of 20 students--preferably the latter. Therefore, at least space for 25 student positions should be provided of a type that is durable and easy to move. Two teaching "stations" or lecterns should be made available in each classroom, one for the "master" teacher and another for an intern, student teacher, para-professional or other type of classroom aide. In addition, the teacher should be able to control and supervise the total classroom situation whether engaged in lecture, discussion, recitation or individual student activity. Storage cabinets, bookcases, magazine racks, a permanent (wall inset) audio-visual screen and map cases plus personal teacher and student storage facilities should be provided.

c. Foreign Languages

It is becoming increasingly evident that traditional attitudes towards the teaching of foreign languages, especially modern foreign languages, have not been realistic, either in the secondary schools or in the colleges. Evidence is accumulating that under present methods of instruction, very few students ever do attain anything like a mastery of a foreign language, and that those who do are generally those who started out with a high interest and aptitude for foreign language study, i.e., a very small percentage of the school population.

According to a study done for the U.S. Office of Education in 1967, a study conducted using over 2,000 foreign language majors in their senior year of college:

"It was striking that according to these estimates, students attained relatively low levels of skills in spoken foreign languages. The median graduate with a foreign language major can speak and comprehend his major language only at about an FSI speaking rating of "2+" that is, somewhere between a 'limited working efficiency' and a 'minimal professional proficiency'. This is generally true of all the language groups, the French group showing particularly inferior performance. But in skills with the written language (reading and writing) the French, German, and Spanish groups attained median scores that correspond approximately to an FSI rating of 'R-3', that is, reading and writing skills of minimal professional proficiency. Russian groups show low average performance even in reading and writing skills, however. It may be concluded that the net showing of college foreign language majors in language skills is far from impressive."

According to similar research done for the Peace Corps and from the general experience of language teachers, it seems clear that high ability and interested students can achieve what the Foreign Service Institute of the U.S. Department of State would classify as "functional mastery" only after a minimum of 450 contact hours of intensive teaching in the less complex languages such as French and Spanish. For less able students, the number of hours approximately doubles to about 800 to 900 hours and for the least able that number doubles to about 1600 to 1800 hours. Thus for most high school students, the range is somewhere between 600 and 900 hours of contact instruction. For more complex languages such as Russian or for a tonal language such as Chinese, the figure is usually considered to be a minimum of 1200 hours.

The maximum amount of time available for the study of a single foreign language in the four years of secondary school would be 720 hours, assuming that the student took one hour of French every single day throughout four years. "Contact hours" means time spent with a live teacher and thus does not include time spent in home study or in a language lab. If this time is added, the total of most of these requirements doubles.

As one expert (Valdman) has put it:

Today the high school and college foreign language teacher is still forced into the straight-jacket of the elementary course. In fewer than 250 hours of contact, spread over a period of one to two years, he endeavors to introduce groups of twenty to thirty students to all the grammatical rules of the target language within a vocabulary of several thousand words so that those students who do not continue the study of the language--and these constitute the majority--will have at least a passing acquaintance with the subject matter. In order to complete the text by the end of the course, the teacher has no choice but to explicate grammar rules and to train students in the translation of target language texts into strained English. The happy few who do continue will be subjected to several levels of review grammar and reading courses, each of which will make attempts at exhaustive presentation, and remedial courses in pronunciation. Admittedly, it is utopian to hope that within the decade ahead, our administrators and our citizenry will become sufficiently enlightened to foreign language teaching needs to recognize that the easiest way to impart complete mastery of foreign languages is to institute the five to ten year sequences found almost universally in other Western countries. We must, therefore, improve foreign language teaching the hard way by increasing pedagogical efficiency. Clearly, pedagogical efficiency can neither be achieved by improved materials exclusively, nor by the installation of more complex electromechanical devices, but rather by the creation of a teaching context which will increase contact hours without substantially raising instructional costs."

If this research is correct, it can be seen that in so far as the SEC is concerned, it is not at the moment realistic to assume that more than about 10% of our student population is going to fall into the high aptitude, high interest category and is therefore going to or probably should select a four-year intensive course in even one foreign language aimed at achieving mastery. For this 10% or about 500 students, we would recommend a complete and rich series of offerings in French, Spanish, German, Russian, perhaps Italian and with offerings also in Swahili and perhaps even Chinese if there are sufficient interested students.

However, we do not mean to imply that there will be no advances in the

teaching of language during the period between now and the time the SEC opens.

Such advances may significantly alter the present gloomy picture so far as master of languages is concerned. Valdman, again, has summarized some of these probable advances this way:

1. Simplified electronic classrooms will be more useful than ever for daily guided practice and correction of students. Such facilities will be available in most foreign language classrooms in most secondary schools. Audio programs may in some cases be piped in through various kinds of centralized remote-control systems, but the teacher must continue to have full control over the movement of the program, including random access to its elements, and not just start and stop a given audio lesson.

2. Secondary schools of medium and large size will be equipped with language laboratory rooms containing student booths and recorders (probably with individual remote control) for individualized independent study with the more successful versions of current programmed instruction efforts. Large groups can be accommodated in such a facility; yet each student will work at his own pace.

3. As an integral part of basic-level programmed language self-instruction, there will be small-group (three to five students) display sessions or speech clinics with an instructor for fifteen to thirty minutes once or twice a week (Valdman, 1964). It is almost impossible to dispense with the responsive, live human touch entirely. Verbal output just does not seem to be able to flourish with machines as it does with other living creatures. It will also be a long time before a machine can confirm the accuracy of oral response. A live supervisory element also seems necessary to keep slower students from bogging down in a rut or dawdling.

4. Simplified audio tape machines with one or two controls which provide a choice of several learning modes of sophisticated tape handling on an automatic measuring basis, as well as immediate and repetitive retrieval playback of any program segment or student response of any given (variable) length, all without the need for conventional rewinding of tape, will be available from industry. Such devices will be used either with programmed self-instructional materials (with some permissible branching) or with current audiolingual dialogue and pattern-drill tapes with or without built-in pauses or repetitions. Some of these features are already available on a limited basis, but a real breakthrough is imminent for a device which does all these things in split-second, "apple-pie" order and with consistent accuracy. It is amazing to experience what a difference it makes in a record-compare cycle when the model and response are retrieved and compared while their acoustic images are still ringing in one's ears. We all know that the auditory memory span for these acoustic images is extremely short and fleeting. These devices will be available as lightweight portable units or as student positions in standard language laboratory systems in which timing and sequencing may be controlled for a whole group or released to the individual for self-pacing. The past ten to fifteen years have seen very little basic change in language laboratory equipment, but the next five years will show major improvements in quality and sophistication.

5. Student record-playback-compare learning activities will be accepted again as productive and used on a more sophisticated basis, especially with improved audio discrimination-training materials and techniques.

6. New kinds of audio learning materials and techniques with special acoustic adjustments, such as speeded or slowed speech without distortion or electronically filtered sidetone to provide certain compensations for individual differences, will become available.

7. Small projectors and video tape machines will be used more and more to present authentic contemporary intercultural material for large-group and individualized reviewing and previewing. Among the new materials will be filmed demonstrations of contrastive paralanguage and kinesic behavior patterns in context, such as gestures commonly used in the foreign cultures.

8. We should not expect any unusual breakthrough of the science-fiction type in which sleep learning, "instant" language, "total immersion," and other glip approaches claim to yield a better product on a crash or cash basis. Yet we can expect to learn a great deal more from research in psycholinguistics about the nature of language and language learning, and students will be able to reach more efficiently levels of proficiency not heretofore achievable under school conditions.

9. Telephone-type audio learning systems will appear on more university campuses, and the possibilities of simplified mass oral testing through centralized telephone facilities will be realized.

10. Satellite communications will revolutionize the availability of fresh audio and video materials from the major continents of the world. Educational repositories for such materials will also make selective availability similar to that of library books and periodicals a reality."

Given this set of facts and possible suggestions for the future, we would like here to propose a language program for the SEC which falls naturally into three categories:

1.) An intensive four-year program leading to mastery of a modern foreign language for the 10% of the students who are able and interested in such a program.

2.) A two-year program designed for those who have less ability and interest which aims only to provide a reading and elementary speaking knowledge of a language, the primary aim being to introduce a student to a single foreign culture in some depth, using language as one of the primary means of getting to know that culture. We are assuming here that if one does not have some rudimentary command of a country's language, one's grasp of the culture is going to be limited. This program, while it may have a language learning emphasis, would also include a strong emphasis upon the history, literature and social structure of the culture and would thus

tend to be a highly inter-disciplinary program involving teachers from the history and social science department and from cultural arts. This program would include the ancient languages, especially Latin but also possibly Greek.

3.) A much more broad and truly interdisciplinary one to two-year program, done in conjunction with the language arts history and social science and cultural arts departments, in a manner similar to Social Science I and II, in which language is treated primarily as a human attribute, language and languages as a part of the human social experience. This would essentially be a program, perhaps required of every student, in which language is looked at as a peculiarly human experience, a symbol system that no other species possesses (so far as we know). Topics here would include the role of language in the evolutionary development of man, the relationship between language and thinking, attempts to discover the role of language (if it exists) in other species, the difference between languages and the reasons for this, the role of language in culture and the role of specific languages in specific cultures, and the effects upon human life if the capacity for language should suddenly disappear. For more advanced students in this program, we would like to provide an opportunity to study language as language (linguistics), although introductory approaches to linguistics would be included in the less advanced program as well.

We do not see these programs as "tracks", at least not in the conventional sense. Those students with high interest and capacity in language would probably take all three programs or parts of them. Students with less interest might well take the second and the third programs. Very nearly all students might well take the third program, or take it as a possible alternative to Social Science I or II.

In these very general terms, then, we see the language program as having the following components and the following estimated student enrollments:

Program I ---- 10% or 500 students at any one time, or about 125 students

per House.

Program II--- An additional 20% of the students (with some overlapping with Program I) at any one time, or about 250 students per House.

Program III-- An additional 30% of the students at any one time (again with some overlap) or no more than 375 students per House.

Space Requirements

Given the rapid state of development in electronic equipment, as well as advancing methods in language teaching, it is difficult to specify space needs at this time. We see all language teaching (with the possible exception of advanced language students involved in independent study in the central media center) as taking place in the Houses. Each House must, therefore, in addition to a departmental center, have attached to it a large and well-equipped language laboratory capable of handling perhaps 50 students at a time, with the possibility that each student could be receiving individualized language instruction. In addition, there should be regular classrooms devoted to the teaching of languages, three per house, rooms that can be quickly set up for mechanized instruction or where equipment can be safely deposited for use as teachers and students see fit. These rooms (and/or the language lab) should also be adaptable for small group (three to five students plus teacher) display sessions or speech clinics. The House theater-auditorium would serve as the language departments lecture room for groups that could not be accommodated in the regular rooms.

d. Mathematics

The fundamental concept in the development of curriculum in mathematics will be to provide for the vertical advancement and acceleration of each student dependent upon his personal aptitude and level of aspiration. It is undoubtedly true that students will come to the S E C with a wide diversity of talents and experiences. While in the S E C, all will be expected to assess and improve their mathematical aspirations and skills. The challenge will be to determine in each case the appropriate beginning level for each incoming student--and to provide a flexible but interlocking program of mathematical activities that enables each student to progress to a point where he can satisfy his own need to further "use" mathematics--whatever need this may be.

Present course selection patterns indicate that approximately 80% of all secondary school students take some form of mathematics at any one time. Anticipating little change in this pattern, it is expected that some will proceed rapidly through a rigorous and sophisticated chain of mathematical offerings in a shorter time than four years and be prepared for advanced placement courses either in the S E C or at neighboring universities. Many, probably half, will pursue enough mathematics to meet college board standards or just secondary school admission requirements. Almost as many, however, will plan to drop mathematics as soon as possible--(credits in two courses is presently required for diploma in Boston Secondary Schools.) Devising and implementing a curriculum to adequately meet the needs of the students in this group remains a major problem in mathematics curriculum development.

For all these groups, but with particular emphasis on the latter, we look to the first-hand experiences that can be provided in the mathematics laboratory--workshop (as well as the other shops and laboratories set up in each house) to present a ready source of relevant problems which require mathematical skills for their solution. It will be

a special assignment for the mathematics department head in each house to assure that there will be a constant flow of ideas, personnel and materials into the "laboratory-workshops". In this additional way, he can infuse a vitality and relevance into each of the curriculum offerings in mathematics.

Desirable educational experiences in mathematics can be realized in a variety of different environments and grouping situations. In planning for a mathematics program, care must be taken to provide that the following type of activity be available to student and teacher:

- (a) considerable personal involvement and extensive practice on the part of the individual student
- (b) individual exploration, research and project activity
- (c) informal discussion-activity among small groups in problem solving sessions
- (d) teacher oriented, "recitation-discussion" type of situation and
- (e) completely teacher directed sessions (film, TV, lecturer, master teacher, etc.

To accommodate a mathematics program involving such various activities, the environment of a mathematics cluster must include for each house:

- (1) Carrels for individual study located in math classrooms, in the media center, or the math laboratory
- (2) Tables convertible to small clusters of group study space within the classroom
- (3) Seminar rooms for informal or taped discussions, problem solving groups, club meetings and projects
- (4) Spaces for a "recitation-discussion" type of program similar to our conventional classrooms and designed to accommodate a student group up to 30 students. Such spaces should be clustered to permit expansion to large groups of students 60-90 with the use of movable partitioning devices
- (5) A departmental center to include: a mathematics laboratory or a "learning center" area providing materials, equipment, books, and staffed with personnel trained to practice inductive-discovery methods. Adjacent to or in the laboratory should be a work room or work area for project activities, small perhaps, but with ample storage to set aside student projects or experiments so that he could pick up and continue at his convenience without great delay; an office for the head of the math department; and a conference-work-room for teachers.

e. Science

The philosophy of science education of the new school will be based on the following assumptions:

- There are certain skills that all scientists use more or less all the time.
- Investigative and intuitive procedures represent the major activities of all scientists. These procedures may be in the abstract or dealing with the concrete. Less emphasis on the descriptive approach to science.
- Discovery is one of the rewards of science.
- The inductive approach is universally used in all science fields whether it be in pure research or applied research.
- Science classes should not be textbook centered. Textbooks not only place too many strictures on the freedom of a science class but they also represent an approach to science that is unrealistic.
- The boundaries of traditional sciences are becoming less and less well-defined.
- Audio-Visual aids will be in some instance used as core materials.
- Modes of perception appropriate to the age level of the student will be used whenever possible.

The course of science studies to be found in the new high school will possess several unifying threads. Among these threads will be a process approach to science, and an investigative orientation toward science emphasizing the inductive method.

The role of the textbook in the science program will be greatly reduced to permit more freedom within the classroom to pursue interesting scientific problems as they arise. The function of the textbook will become more ancillary in nature. Student involvement with a problem largely of his own choosing or one that he has chosen cooperatively with his classmates will become the major concern of the class.

Interdisciplinary exploration and investigation shall be introduced and encouraged whenever it seems feasible by the class teacher. This approach to the study of science is in keeping with the general trends that are to be found in research in industry and the academic community today.

In drawing up the science curriculum for the S E C, the following guidelines were used:

1. Students would not be given a choice of tracks and then forced to follow the subjects of the chosen track.

2. Science is not a collection of a number of unrelated areas. The various sciences have varying levels of difficulty. Advanced levels in science require that the student has already acquired certain prerequisite skills and/or knowledge. Because of these considerations, it is reasonable to assume that many students will take a large part of their science subjects in certain sequences.
3. Guidelines 1 and 2 should suggest that a pupil's program should be written with careful consideration of the background, ability, interest, and ambition of the individual student. The flexibility of the program and the varying numbers of programs will then be determined by the needs of the students as individuals.

We, therefore, see the science offerings in each of the houses as the following ("A" indicating a relatively high level of difficulty, "B" indicating a middle level of difficulty, and "C" an introductory or basic skills level):

Earth Science. (A and B)
Space Science.
Introductory Physical Science. (A,B, and C)
Biology. (A,B, and C)
Chemistry. (A,B, and C)
Physics. (A,B, and C)
Survey of Physical Sciences.

The following curricular offerings should be provided within the specialized science facilities ("1" indicates a one semester course offering)

Advanced Biology
Advanced Placement Biology
Advanced Chemistry (A and B)
Advanced Placement Chemistry
Qualitative Chemistry (1)
Quantitative Chemistry (1)
Advanced Physics
Medical Laboratory Techniques
Astronomy (1)
Microbiology (1)
Radioisotopes (1)
Meteorology (1)
Oceanography (1)
Geology (1)
Marine Biology (1)

Facilities:

The space implications of the proposed science curriculum will be based

on the following enrollment projections per course offering.

	<u>Estimated Enrollment</u>
Earth Science A	300
Earth Science B	100
Space Science	300
Introductory Physical Science A	250
Introductory Physical Science B	100
Biology A	540
Biology B	150
Biology C	200
Chemistry A	450
Chemistry B	100
Chemistry C	210
Physics A	450
Physics B	60
Survey of Physical Sciences	210

The following curricular offerings should be available as part of the specialized science facilities:

Advanced Biology	40
Advanced Placement Biology	15
Advanced Chemistry A	40
Advanced Chemistry B	30
Advanced Placement Chemistry	15
Qualitative Chemistry (1)	75
Quantitative Chemistry (1)	75
Advanced Physics	25
Medical Laboratory Techniques	60
Astronomy (1)	150
Microbiology (1)	60
Radioisotopes (1)	150
Meteorology	150
Oceanography (1)	60
Geology	75
Marine Biology (1)	60

In determining the numbers of classrooms and laboratories that will be needed, the following assumptions have been made:

1. The enrollment listed on the preceding pages is correct.
2. No laboratory section will exceed 25 pupils.
3. In order to allow preparation for laboratory and lecture-demonstration work and in order to facilitate programming, the lecture room and laboratories will be scheduled for more than seventy percent of the total class time.
4. For every two laboratories there should be one preparatory-storage room

Facilities:

The science facilities in each house should include:

Lecture Room 1 seating 100 students

Laboratories

1 Earth Science

1 Space Science

1 Introductory Physical Science

The "Survey of Physical Science" Course
would be accommodated in these labs

2 Biology

1 Chemistry

1 Physics

1 General Purpose lab (Physics and Chemistry)

Special Facilities-Needed in Central Area

Lecture Room

1 seating 100 students, equipped for audio-visual display.

Laboratories

- 1 Advanced Biology, Advanced Placement Biology Microbiology
- 2 Advanced Chemistry, qualitative and quantitative Chemistry
- 1 Advanced Physics
- 1 Medical Laboratory Techniques
- 1 Astronomy
- Meteorology
- 1 Radioisotopes
- 1 Oceanography
- Marine Biology
- 1 Geology

The following facilities should also be included in the central science area of the Secondary Education Complex:

1 Greenhouse

1 Large room equipped with individual research area

1 Photography room

1 Radio Room

1 Vivarium

10 offices for head of department of advanced science and teachers

1 conference room attached to departmental office

f. INDUSTRIAL ARTS

Industrial Arts should offer the high school student a broad range of experiences in technological and industrial areas. In a society where applied science and product are omnipresent, there can be no doubt about the vital nature of industrial arts as it pertains to this aspect of our culture. The student, among other things, is a physical being who needs the opportunity to feel, manipulate, form, devise and create with real materials and tools. By planning, working, exploring, experimenting, the student broadens his outlook and interests and becomes personally involved with his environment instead of taking a seat in the spectator gallery. Industrial arts offers the opportunity for cooperative efforts among students which is lacking in many of our subject matter areas, but is such an important part of life. By participating the student broadens his outlook, changes his attitudes, and learns to respect the craftsman, the skilled worker, and indeed even those with lesser skills. Thus, the specialized structure of our society becomes more apparent and the worth and place of the individual members become more meaningful.

The current preoccupation with the future college student tends to make high school a limiting and narrowing experience with no place for the average student or even the above-average student who sees no personal value in college; indeed it does not even adequately prepare the college bound, whose interests are the technical and engineering areas.

Industrial Arts should be offered on an elective basis to all students within the SEC. During their years of attendance at the SEC, it is hoped that almost all students (80 - 90%) would participate to some degree in the Industrial Arts program. A diversified, flexible, functional, integrated and interrelated program will be a step in the right direction. No longer can we remain largely geared to the academically, emotionally and socially limited.

Administration and guidance must overcome its parochial bias and help students meet the challenge of adaptability, flexibility and mobility which they face.

Industrial Arts must become a real partner in a broadly based approach to learning within which disciplines may merge and bring about the elimination of artificial subject matter barriers. English, Math, Science, and Industrial Arts must become common partners in a revitalized effort to explore the technical-science aspects of our culture. Every attempt should be made to keep the curriculum content relevant and supportive to current industrial practice, and other curriculum offerings. This approach will give students a broader understanding of the relatedness of ideas and real things.

To implement the "general education" aspect of Industrial Arts, the scope, the availability and accessibility of the facilities are geared to participation on an elective basis, by all of the boys sometime during their high school years. The labs are also available to the girls in the appropriate areas of their interests. Even though the program is elective, effective guidance coupled with an orientation and sampling program, should result in nearly 100% participation by the boys, though in some instances this may be on an informal workshop basis.

The types of labs needed to aid in the development of broad understandings of industry and technology are as follows:

Comprehensive Lab.	Graphic Arts
Drafting	Power Mechanics
Electrical-Electronics	Structures (Materials-Testing-Research)
General Metals	Wood and Plastics

To maximize the opportunity for interdisciplinary teaching and learning to take place, each house will have one Drafting Room, one Comprehensive Lab., and one Electrical-Electronic Lab. in close proximity to the in-house Science facilities. This arrangement will allow experimental and experiential activities to occur without being inhibited by the confines of a single discipline as might take place if all the labs were isolated from the house.

A central Technical Science facility will house a large, multi-purpose, all service area, plus the following six labs.

- (1) Drafting
- (2) General Metals
- (3) Graphic Arts
- (4) Power Mechanics
- (5) Structures (Materials-Testing-Research)
- (6) Wood and Plastics

The role of Industrial Arts is best expressed in terms of its following functions.

- (1) Interpretive

Concepts of technology, material culture, industry, mass production, automation.

- (2) Exploratory

Personal interests and abilities, occupations, industry, avocations, research and development.

- (3) Foundational

Background in technical skills and knowledge

- (4) Preparatory

Pre-vocational, pre-professional.

Industrial Arts will be offered to all students (boys and girls) on an elective basis, with the broadest participation anticipated at the 9th and 10th grade levels. Initial participation by students would most likely be at the Industrial Arts house facilities, then as areas of interest are refined there would be greater participation in the central Technical-Science labs. Because of the broadly based nature of the "in-house" labs, the needs of some of the students could be met wholly within the house; first by formal use of the labs for special projects or activities. The wide spectrum of individual interests, abilities, and needs, requires a flexible Industrial Arts program ranging from

informal use of the labs to courses of 2-4-6-8-10 periods per week.

The teaching staff would include the professional teacher, professional and non-professional guest specialists, para-professionals, and student aides.

As Industrial Arts is essentially a laboratory course, most classes will be limited to 15 and most instruction will be geared to this class size or small group and individual instruction. Occasional large group presentations will take place when this is a more efficient method. Intra and Interdisciplinary techniques should be utilized to minimize a fragmented approach to the teaching-learning situation. Industrial Arts offers certain supportive activities to most other areas of the curriculum as they do to Industrial Arts. There is a natural affinity of Industrial Arts with Math, Science, Home Economics, Business Education plus others. The strengths that each of the areas has to offer to be explored and more fully utilized for a unified and more meaningful approach to education.

All facilities should be planned for optimum community use, with special consideration for ease of access, adequate storage and effective display areas. A realistic policy for community use would emphasize that participating adults set the tone and pace of their own programs. The use of this facility as a center for training and re-training of personnel for entry-level occupational skills is conceivable, at least until the planned Occupational Resource Center can assume this task.

The total number of 18 Labs, plus the Multi-purpose area (which should be in constant use) is deemed necessary to carry on an effective Industrial Arts program. The Mass. Dept. of Industrial Arts currently recommends one lab for every 250 students in a large comprehensive high school. Brockton is providing for 16 Industrial Arts Labs for a new 4500 student comprehensive high school, and New Bedford is providing 11 for 2300 students.

An added factor that will give new impetus to a strengthened Industrial Arts program is the proposed Occupational Resource Center. This eleventh to fourteenth grade level center will tend to postpone early occupational choice to the 11th, 12th, or 13th grade level. This will result in greater Industrial Arts exploratory and pre-vocational courses at all high school levels at the students' home school, as there will be no Industrial Arts courses offered at the Occupational Resource Center. The location of the O.R.C. on the new high school site would strengthen the Industrial Arts program because its exploratory and pre-vocational nature would make it a more vital experience for the prospective O.R.C. student.

g. Home Economics And The S. E. C. Program

Human relationships were never more important than they are today. The building of stable homes and the development of satisfying relations within the neighborhood and the community are receiving increasing emphasis. Every area of the home economics curriculum offers opportunity for teaching some aspect of human relations.

The majority of girls enter into marriage and continue in it for the greater portion of their lives, either on a full-time or dual-time basis with a career (job). This added handicap of a job makes it even more important that they become proficient because of the lack of time and energy to devote to both adequately. Home economics instruction has been developed to meet the needs of all girls--those who are college bound, those planning to take jobs, the bright and the not-so-bright, the handicapped, the disadvantaged and those with advantages, the married and the unmarried.

Home Economics is particularly sensitive to changes affecting families, homes and communities. The following points are some of the more clearly defined directions in which the curriculum seems to be tending:

1. A greater emphasis on family relations and child development.
2. Consumer aspects have become more important due in part to the increase in family income. Many women are working outside the home and therefore have more money to spend. When women are earning salaries, they have less time to produce goods and services in the home, therefore, consumer demands mount. Also, the increase in available products growing out of the new technology makes intelligent shopping a must or confusion, indecision and waste will result.
3. More money to spend and the increased pressures to buy through the use of credit play a role in bringing family finances to the fore.

4. The need for better management of time, energy and human resources becomes increasingly evident. Learning the basic principles enables a woman to become proficient in her dual role of homemaker and wage earner and thus become successful in both. There is also a shift in management when women take jobs outside the home, and so children often have to assume more responsibility in the home. In a study conducted by Changing Times on the working wife and mother, half of the respondents indicated that schools should place more emphasis on the dual role of the working wife and mother and they readily said, "Schools are unrealistic in educating girls. . . Most women are trained for one role or the other, but never both. As a result their time is poorly managed. . ."

(Changing Times, The Kiellinger Magazine, July 1965.)

Curriculum Content

Home Economics encompasses several specialized areas as do many other disciplines. The titles vary somewhat, but specific courses are developed within the following unit areas:

1. Family relations and child development
2. Family finances and consumer education
3. Home management
4. Clothing and textiles
5. Foods and nutrition
6. Housing, home furnishings and equipment
7. Home Economics Education

The broader framework that follows lists the courses that should be offered in the total curriculum:

		Periods Per Week	(half year equivalent) semester
Foods 1	(and nutrition)	2	1
Foods 2	(and nutrition)	3	1
Foods 3	(and nutrition)	3	1
Foods Major	(and nutrition)	5	2

		Periods Per Week	Semester
1	Family Life and child development 1	2	1
	Family Life and child development 2	3	1
	Family Life and child development 3	3	1
	Family Life and child development Major	5	2
	Clothing and textiles 1	2	1
	Clothing and textiles 2	3	1
	Clothing and textiles 3	3	1
	Clothing and textiles Major	5	2
	Home Management 1	3	1
	Home Management 2	3	1
	Home Management 3	5	2
2	Home Economics Education	5	2

Curriculum Changes

Some courses should be combined and the scope of others broadened to meet newer concepts in teaching. The new facilities which will be tailored to meet these requirements will immeasurably help the department make the necessary changes.

These courses should be offered as an elective to all students - boys and girls - on a sequential basis. All girls should take one course in each of the four areas in the curriculum. If they prove that they are already proficient in a particular subject or course (such as making a meal), they should be allowed to pass the requirement or allowed to go on to the next step.

Students

In 1967 of the 20,077 students enrolled in the Boston high schools 52% were girls, and of this 12% were taking Home Economics courses. In 1968 of the 19,992 students enrolled in Boston High Schools 50% were girls, and of this 18% were taking Home Economics courses. Although there was a 6% increase, it is our belief that this percentage is extremely low and does not accurately reflect the number of students who would either enjoy or be benefited by such

There is an anticipated increase in the enrollment in Home Economics courses in the SEC. The Boston Home Economics Department is currently involved in a program to educate faculty, parents and students to the benefits that can be reaped by all students through Home Economics. This three-pronged program consists of:

1. introducing the faculty, school administrators and guidance counselors to the possibilities and job opportunities in Home Economics, including those which require degrees,
2. introducing the parents to the scope of the field of Home Economics by Home Economics oriented school functions, and
3. introducing the girls themselves to opportunities that are available to them, by means of meetings, assemblies and participation in community programs, such as the Jordan Marsh Council for girls taking Home Economics.

As a result of this program alone there should be an additional increase in enrollment in Home Economics. Moreover, because of the following factors, another increase should be projected:

1. The philosophy of the school as it relates to our program.
2. The elimination of the track system, so that Home Economics can be elected by all.
3. The information thus far has been based solely on an enrollment of girls. It is anticipated that there will be some boys electing Home Economics courses, such as Family Life, Consumer Education, Family Finances, etc., and thus the enrollment would increase proportionately.

Therefore, the needs of the SEC are not based on present percentage figures but have been projected to a percentage of 20% of all students involved in Home Economics courses at any one time.

The facilities to accommodate the Home Economics Program would include in each house a

Food and Nutrition Laboratory

Clothing and Textile Laboratory

Experimental Laboratory

Combined Classroom-Seminar Room

Teacher Conference Room

Storage Area

The facilities should also include a Family Life Center as a central facility with a recommended location near the Multi-Servide Component of the SEC complex.

More detailed specifications on the nature of these areas will be presented in a later section of this report.

h. Business

In the light of increasing pressures from the city-wide community for improving the social and economic status of **students**, the Secondary Education Complex¹ must equip a major part of its enrollment with a marketable skill. However, marketable skills are of no value unless there are job opportunities for those who have developed skills. In this respect our community is most fortunate because there are over 16,000 commercial, industrial and service enterprises in Boston. We have a vast accessible market for trained office and service employees; a market that creates and sustains a continuing demand in these skill fields.

In the final analysis the reason for including business subjects in the SEC curriculum is to meet the joint needs of the pupil and the business community.

The subjects offered will include skill building courses such as accounting, shorthand, typing, office machines, machine transcription and data processing and distributive education.

To broaden the pupils business background and provide a better understanding of our system of free enterprise courses will be offered in economic geography, business law, economics and general business.

The business education curriculum will provide not only for the needs of the regular day students at Madison Park but also for non-public school students; for the adult community, for retraining office workers displaced by automation; for employed office workers by providing special classes in speed building in typing and shorthand, special classes in office machines, accounting and data processing, etc.; and possibly providing for correspondence courses. The entire program will be built on the premise of providing for flexibility in all areas of subject matter and space in order to meet the educational needs of the students at a particular time.

The skill courses will be structured to accommodate the various levels of students' abilities ranging from the relatively low level repetitive record keeping operations to advanced placement courses for the college oriented.

These courses will be available to all. They will be offered to some students as electives, for others they will be required; in some instances they will be one in a related series; and in other cases they will be recommended as one in a suggested sequence of courses.

No teacher is an expert in all areas of his subject. With this as an hypothesis the business education curriculum will seek to involve all appropriate sectors of the community in the teaching process: professional and non-professional teacher aides, clerical assistants, equipment specialists, office managers, parents and graduates. Community involvement is a potent instrument in developing good public relations and community support for the educational program. It is a powerful tool in keeping course content updated---away from the horse and buggy era and in step with the jet age.

In most subject areas the lower the ratio of teachers to pupils the more effective the educational process is likely to be. With this in mind the maximum class sizes would range from a suggested size of 24 in office machines to as many as a suggested size of 100 in typing.

Pupils will progress farther and faster if they have a choice in what they are going to do and how they are going to do it. Assuming this is to be true, the business education program would be designed to be as flexible as possible in order to permit programming to the student rather than moulding the student to the program.

In order to encourage thinking, self-direction and self-guidance , the pupil will be offered choices not only as to material but also to the manner in which he elects to participate in the learning process; working

individually; working with a small group; or working with a larger group under closer teacher supervision.

The student will be given the opportunity to progress beyond the competence of the teacher at which point community professional assistance would be enlisted.

Seminars and co-operative student projects will be common in order to foster and develop the ability to work in harmony with others; an asset that is needed in our pluralistic society.

Subject material will be structured, as far as possible, to present a problem and the subject material must contain within it the means for finding a solution. Teaching methods employed will seek as prime objectives, to develop responsibility, self-teaching, self-direction and thinking.

The educational space where the learning process is carried on, the supporting educational materials and equipment should be so attractive and so modern that they will serve as major motivating forces. To this end, we should look forward to using the most sophisticated audio-visual aides as video cartridges, computer aided instruction, electronic laboratory devices, and teaching machines.

Much has been said and printed about the automated office. The business education curriculum will prepare the students for the age of automation by giving them specific skills in demand at a particular time to obtain their first job and basic skills to provide for further employment and advancement.

In preparing the students for the age of automation in office procedures business education courses should reflect that automation has affected jobs at the lower levels of skills particularly those in the field of payroll, accounts receivable and payable, cost accounting, billing, inventory, and sales analysis. The least affected areas have been in the fields of secretarial, stenographic and special types of clerical work.

We realize not only that data processing is here to stay but also that it will eventually reach down into the relatively smaller firms through the availability of computerized service and the development of smaller, less expensive computers. The fact must be accepted that these machines and services will replace present skills.

Although many office workers are and will be replaced by the automation of office procedures, however, as of this date, it is a fact that automation has been followed by an increase in the numbers employed in offices which have automated. (Bureau of Labor Statistics survey of three hundred major companies.)

For specific illustration, in Rochester, New York, a highly industrialized, highly automated city, clerical employment increased 6.39% the first year the equipment was installed; 6.03% the second year; 2.37% the third year; and 7.17% the fourth year in companies that automated.

Whether this trend will continue or not is a matter of disagreement.

However, there is general agreement that what business expects is that the schools provide basic training in clerical skills appropriate at a particular time, a fundamental knowledge of office procedures and a basic understanding of data processing.

Curriculum offerings:

We do not consider that the set of courses envisioned in Business Education constitutes an academic track. Many students who are preparing for college and other post secondary schooling would be participating in Business subjects (most if not all, should develop typing proficiency). On the other hand, many students preparing to enter the business world immediately after secondary schooling, would not be restricted from highly specialized or even advanced academic courses.

Projections on anticipated areas for course offerings in Business

follow anticipated enrollments in each area are based in current pupil course selection trends.

Facilities Requirements

It is anticipated that with the exception of Data Processing, all business education facilities both specialized and non-specialized will be located in the instructional house. In each House the following academic spaces should be provided:

Three General Academic Spaces, for General Business, business law, economics, economic geography and merchandising.

One Accounting Space, suitable for bookkeeping and calculating machines.

Office Machine Room

Typing Room, able to accommodate 70 students and divisible into smaller units.

Shorthand Room, equipped as a dictation lab.

Machine Transcription Room, this can be small--10 students.

There should also be:

Two Distributive Education rooms, one each located between two houses

thus each serving a total of 2,500 students.

N O N - S P E C I A L I Z E D S P A C E S

SUBJECT	% City Wide Now	Modified % Projected	Anticipated Enrollment	Class Size	Location of Rooms
BOOKKEEPING OR ACCOUNTING	26	20	1000	25	HOUSE
GENERAL BUSINESS	3.8	6	300	25	HOUSE
BUSINESS LAW	6.8	8.8	440	25	HOUSE
ECONOMIC GEOGRAPHY	11.7	11.7	585	25	HOUSE
ECONOMICS	4.5	6	300	25	HOUSE
DATA PROCESSING	0	3	150	25	COMPUTER CENTER

SPECIALIZED SPACES

OFFICE PRACTICE I	10.2	12	600	24	HOUSE
OFFICE PRACTICE II	6.1	8	400	24	HOUSE
TYPING	30.6	35	1750	25-100	HOUSE
SHORTHAND	7	6	300	25	HOUSE
MERCHANDISING OR DISTRIBUTIVE EDUCATION	7.2	9	450	25	HOUSE

i. Cultural Arts

We see the position of the cultural arts in the SEC as one of prime importance. The enjoyment and the practice of the arts, at a wide variety of levels, we feel to be crucial to the development of competent, fully educated young people in the latter half of the 20th Century. Indeed, we feel further that a lively interest in and enjoyment of the arts and the opportunity to participate in the creation of art is one of the things that can make a secondary school education meaningful for every type of student. A strong cultural arts program, in which students can become engaged in artistic activity largely on a voluntary basis and as they see art being relevant to their lives, can be one of the primary attractions of the SEC as an educational institution.

What this means in terms of the curriculum is that artistic opportunities must be basically self-directed and self-chosen on the part of the student and must be based upon what the students themselves are moved by. This may well mean a re-direction of the traditional approach to the arts, where art is often seen as one of the "good" things in life that students must be led to appreciate.

We would, rather, take the position that all young people respond naturally to art and are capable of producing art, if they see an opportunity to express what is inside themselves and if they see that what they are encouraged to express has some relation to the world and the life they see around them.

This means, at least for the majority of students, an approach to the cultural arts that begins where the students are and recognizes their immediate and current interests as artistically valid. Whatever forms of music, for instance, that the students are involved in at the moment--jazz, folk rock, the formation of their own combos or groups--or whatever art forms they find compelling--pop, op, television commercials--has to be looked upon as having expressive and perhaps real artistic merit and certainly as a basis for the understanding and exploration of a wide variety of other art forms. The

purposes of such an approach are several:

--to indicate to the students that the field of the arts is not narrow but rather a field of great breadth and infinite variety.

--to indicate to the students that they are perfectly capable of enjoying and participating in the arts at a variety of levels, indeed, that they do participate in the arts when they dance the boogaloo, listen to the Supremes or worry about what color to paint a car.

--to indicate to the students that they are perfectly capable of artistic production, that they can dance, sing, make music on instruments they themselves invent, paint pictures, decorate homes, create sculpture, write plays, poems, stories, produce their own dramas, improvise and act in dramas written by others, that they can make films, animated cartoons, television shows, or that they can combine all of these activities in multi-media presentations.

--to indicate to the students that in addition to these immediate and obvious artistic expressions there exists a wealth of artistic production from the past in all of these fields, that men have been artists for a long time in many different countries and different ways, beginning with paleolithic cave art at Lascaux and Altamira, that many if not most of these artistic expressions of the past have enormous relevance to what is happening today and that Bach, Handel, Michelangelo and Rembrandt can be perhaps as or even more enjoyable and moving as James Brown or Andy Warhol.

--to indicate to students, especially those students who display particular interest and particular talents, that the cultural arts can be a career, as respectable a way of earning a living as selling insurance or working in a garage, and perhaps in the end more satisfying.

This last aim indicates one of the major components of the cultural arts program--the opportunity for talented students to major in the arts and to get started on professional careers. There will thus, in addition to a

considerable interdisciplinary infusion of the arts in all aspects of the curriculum, more formal sequences of instruction (especially in music, theater, and the visual arts) leading to a genuine mastery of these disciplines.

THE DISTRIBUTION OF THE CULTURAL ARTS IN THE SEC

While we are recommending the provision of a fully equipped cultural arts center for the SEC, we see the bulk of the artistic involvement as taking place in the Instructional Houses, with the instructional space in the Cultural Arts Center being used by--but by no means restricted to--the more advanced arts majors and those students who will need to use the specialized equipment provided only in the center.

It is for this reason, in part, that each of the interdisciplinary teams in the Resource Units will have members drawn from the cultural arts faculty--at least one teacher of music or one teacher of art. In addition, each House should be equipped with the facilities necessary for handling a rich cultural arts program. The theater-auditorium in each house, for instance, will be one facility heavily used for these activities, as will the rehearsal room provided for the language arts department. The House Media Center, of course, will also provide a large supply of arts resources--films, prints, books, audio and video tapes, stereo records and tapes--appropriate spaces for listening and viewing. Some of these opportunities, on a small scale, will be available in the Resource Units as well. But in addition to these multi-purpose facilities, there will be specialized space needs for the cultural arts program. These we outline below as each subject is discussed separately.

MUSIC

We see the following courses offered as part of the SEC cultural arts program, these courses to be for credit and elective with the possible exception of the General Music course. It is obviously difficult at this time to say with any precision how many students will be taking each course.

General Music-- a wide ranging course, with every student taking it at some time during his stay in the SEC, to be offered largely in the Houses.

Chorus or Glee Club-- members selected by audition

Orchestra-- members selected by audition

Band-- members selected by audition

Music Theory I-- for more advanced students

Music Theory II-- as above

Music History and
Literature-----as above

For this kind of a program, in addition to the facilities available in the cultural arts center, we recommend the following facilities to be provided in each House:

Two regular classrooms per House

One large rehearsal hall for orchestra and band, with appropriate storage areas, suitably sound-proofed.

Three practice rooms, air-conditioned and suitably sound-proofed

One listening room, with comfortable furniture and either adequately sound-proofed cubicles or more open areas equipped with headphones, or both, plus adequate stock of records and tapes.

VISUAL ARTS

We see the Visual Arts program as having the following basic components:

	CLASS SIZE	COURSE	LOCATION	NUMBER ENROLLED
Level I	25	Basic Art (required) (each house)	(house)	300
Level II	25	Art Major (elective) (entire school)	Arts Center	250
Level III	25	Art Major (elective) (entire school)	Arts Center	150
Level IV	25	Art Major (elective) (entire school)	Arts Center	150
Advanced Art Elective	(entire school)		Arts Center	100

We therefore see the facilities needed in each House as these:

Two drawing and painting studios

Two general studios, equipped for print making, ceramics, metal-craft, wood-working, photography and rudimentary film-making.

DANCE

We see this as an activity taking place largely within the physical education complex, with additional use of the cultural arts center as necessary and desirable for performances.

THEATER

We see this activity taking place within the language Arts zones of the Houses (including the theater-auditorium) and in the cultural arts center.

FILMS AND TELEVISION

We see the film activities taking place as part of the visual arts program in the Houses and thus using the photography and film resources in these facilities, plus also the use of the film center within the larger cultural arts center--again with the arts center facilities primarily for advanced film majors. Television activities we see being handled in the Houses largely by means of transportable video tape recorders, except for the more elaborate productions of the arts center.

j. PHYSICAL EDUCATION

In a previous section of the document (pg. 123) regarding Athletics and Recreation it was emphasized that the Physical Education complex should be designed to house a complete athletic program for all students in the Secondary Education Complex and to meet the recreational needs of the entire community during afternoon and evening hours and that it should be a center of interscholastic and intra-mural competitions in many athletic activities including swimming, gymnastics, tennis, track, soccer and skating.

In supplementing this section of the report, the program in Physical Education for secondary school students is designed on the following premises:

1. The basis for man's self-realization and his contribution to society remains a "sound mind in a sound body". Physical education is the one subject that concerns itself with the physical growth and development of the student. It should, therefore, be an indispensable offering of the school program.

2. There is no valid argument against physical fitness as the optimum state of the human organism. The necessity of healthful vigor, energy, and stamina sufficient to effectively carry out one's life work is accepted as fact.

3. The implications for the carry-over value of the school physical education program in terms of worthy use of our continually increasing leisure time are obvious. Development of specific sports skills to a level of reasonable proficiency seems to be the most likely contribution the physical educator can make in this respect.

4. Each student will be taught a complete range of team and individual sports and skills by professional physical educators and other specialists whose background could add to the enrichment of the instructional program. In planning for the physical education complex we must keep abreast of possible future legislative changes - realizing that such changes could affect the teaching staff but not the necessity of required facilities.

It is expected that Physical Education in some form will be required of all students each year they are in the SEC. The program offerings anticipated for the SEC would include the following:

BOYS

1. Testing program
2. Tough football
3. Soccer
4. Softball
5. Track and field
6. Golf
7. Tennis
8. Archery
9. Lacrosse
10. Swimming
11. Apparatus
12. Tumbling
13. Basketball
14. Volleyball
15. Badminton
16. Organized games
17. Handball
18. Skating
 - a. Ice
 - b. Roller
 - c. Ice hockey
19. Dance
 - a. Square
 - b. Social
20. Wrestling -collegiate - Judo
21. Weight lifting
22. Fencing
23. Table tennis
24. Crew
25. Formal exercise (in the form of a warm-up program preceeding each class period and pertaining to the activity offered.)

GIRLS

1. Testing program
2. Soccer
3. Softball
4. Track and field
5. Golf
6. Tennis
7. Archery
8. Lacrosse
9. Swimming
10. Apparatus
11. Tumbling
12. Basketball
13. Volleyball
14. Badminton
15. Skating
 - a. Ice
 - b. Roller
16. Organized games
17. Handball
18. Field Hockey
19. Dance
 - a. Folk
 - b. Square
 - c. Social
 - d. Modern
20. Judo
21. Fencing
22. Ping Pong
23. Exercise program

A statement regarding the proposed facilities for this program has been previewed in the prior section on the Athletics and Recreation Program. More specific details will follow in the Facilities section of this document

HEALTH EDUCATION

Instruction in health should be part of the total curriculum of the school,, and will be required for each student on the present ratio of three periods per week for a single year. Since many of the objectives of health teaching can not be achieved until the pupil is more mature, health instruction should receive emphasis in the secondary schools by providing opportunities to develop knowledge and skills, concomitant habits, attitudes, and ideals necessary to meet present and probable future health needs of pupils.

Such a program would be offered in the instructional house under the general supervision and coordination of the physical education department. The large instructional staff attached to the physical education complex presents a great variety of knowledge, talents and abilities in fields related to health education. Teams of these instructors would be expected to give specialized instruction in the health program.

Many other opportunities occur, however in connection with other school offerings (notably in the field of social studies, home economics and certain branches of science) to supplement the health education program. This area offers an ideal focus for inter-disciplinary curriculum development efforts.

There seems no reason that health educators should be completely divorced from school health services. Indeed, school physicians and nurses might not only support the health program of the school with examinations and testing, but by assisting in program development in this area and by assuming an occasion as clearly defined teaching role.

Also, in support of the program in health education, the resources of the multi-service component of the SEC, local health and community agencies, hospitals, medical schools, police and fire departments can provide a constant and expert source of material and manpower. It is only in the context of this total consideration of all forces in and out of school that we can establish a course of such viable content that will effectively communicate the principles underlying good health practice.

IV. D GUIDANCE - ASSESSMENT AND EVALUATION

The guidance model within the SEC should be based on the goals of providing experiences that would give the student a sense of belonging and of participation as well as the greatest sense of competency. To do this the guidance system needs to be attentive to a student's style of learning and his capacities.

By guidance we mean two things:

- (1) the provision of a process by which students make choices in the learning situations to develop their own capacities relevant to their present and future roles as student and human beings
- (2) the provision of services to handle problem behavior which may intrude upon the student's roles and tasks inside and outside of the school.

The guidance counselor helps in the clarification process for the student by assisting him in formulating his goals within the SEC and after graduation and advising him on the process by which he may achieve these goals. The counselor also works in the critical field of connecting problem students with the special services they need.

The SEC setting is designed to provide the widest range of opportunities for unique and individualized learning. It also allows for the widest range of behavior so long as the primary task of learning is uninterrupted. The guidance system must have knowledge of the available learning resources in the SEC including teachers, media and special services in order to perform its function in the individualized learning setting.

Given the large size of the student body of the SEC, it becomes evident that the physical form of the guidance system demands the use of a computer to maintain a relevant data bank of the student needs in the academic learning area and in the social and behavioral areas. The computer will be useful for the programming of the learning process according to each person's needs and

the monitoring of student progress. Essentially the guidance system is a group of trained people who utilize technology to enhance their skills. Thus, we propose that their work be central to the programming of all learning, using the computer to keep track of the resources available to the students and teaching staff. These resources will include books, audio-visual materials, ancillary teaching tools within the SEC, and other material and people outside of it. The computer will be programmed to collect and store the interrelated data that can then be fed back to a variety of people, including the headmaster and his administrative staff, the teachers, those in special services, the students, and their parents for a number of different tasks.

For individualized learning, a prime objective of the SEC, the guidance system provides the information to permit 5,000 students the freedom to explore, to obtain information within a specific context, to acquire skills, and to perform learning tasks. The student seeking resource material needs to have this material offered in a way that matches the level of complexity of his task. For example: a student who is learning the economic geography of New England must have access to maps that give the location of the area and to information about the area's major cities, products, and industrial and agricultural history and facts. Through the assistance of the computer, information can be presented at any level of the student's interests, and the information can be presented immediately and in sequence. At the same time the presentation can be flexible so that students who are capable of jumping from one level of complexity to another or of moving rapidly through the sequence will not be delayed in their learning activities.

Important to any guidance system is the feedback. As the student does his work, there must be points of testing for this feedback. The testing may take the form of (1) curriculum-imbedded tests (2) optically-scannable multiple choice tests and (3) essays handed into teachers with the results fed back both to student and to the computer with comments about the essays. The data from

the tests tells the teacher and the student how well he is doing, where and how to proceed, and whether the resources or the courses are successfully present. The feedback system provides the teachers, students, and the administration relevant information to provide for changes in programs, personnel, space and time allocation, and media development. It can be of inestimable value in providing material for intelligent reporting to the parents and for fruitful conferences about the progress of individual students.

To provide this computer-based programming, a guidance staff directly related to teachers, students, administration is necessary. Each resource unit will have one guidance counselor in a ratio of 1 - 250 students. The counselor will be housed in a guidance office with at least one computer console to be available to the 250 students. If the computer proves effective in the formulation of the learning experiences, the counselors will be of use primarily in the clarification of gross planning for learning such as identifying areas of interest or in routing students with behavior problems to the proper special service. The most effective use of the computer requires that the guidance program begin work before the actual building of the school by involving systems analysts, computer programmers, curriculum developers, and guidance counselors in the plans for its use.

The guidance system for students who need special aid is obviously tied to the general learning system. We assume that failure on the part of the student to act effectively in a learning situation is a signal of trouble either in the learning system or in the learner and his own development. We are aware that the learning milieu is often responsible for problems if it does not provide for the learning of a wide range of knowledge and skills by many types of learners. However wide the range that is planned for the SEC, we recognize that there will be a point in the lives of some students at which the learner's ability to grasp what even this kind of school may offer will need to be enhanced by other means, not solely educational.

Any program of guidance must proceed from the concept of developmental framework, wherein the students are developing biologically, psychologically, cognitively, and socially within their families, among their peers, within their school and community. Using Erickson's model for psychological development, Piaget's model for cognitive development, and a medical model of physical development, we might find it possible to derive some standards for growth against which student behavior and thinking can be judged in order that the staff be able to see cues requiring guidance intervention.

What are some of the cues?

1. We know that most of the children who come to psychiatrists or have trouble in school tend to exhibit as early as the first grade difficulty in undertaking tasks in school. The inability to perform the job of being a student is a significant indication of problems in the process of schooling or of other problems in areas of the child's life which are then reflected by his inability to handle the school work.

2. We also recognize that in a high school how a student gets along with his fellow students is critical information since at that level we expect students to have some capacity for skills in the peer arena. Information as to how he relates with others, whether he is a follower or a leader, his ability to make friends - all are important to know.

3. We know that information about the individual's health and his ability to take care of his body comes into the teachers' awareness and often signals a problem.

If we can develop a sophisticated model for a guidance program and a technique of recognizing when children appear to be not fitting into that model, we can then keep track of each student's psycho-socio-biological development and provide special services where needed. The SEC is to be organized into groups small enough so that the staff may become aware sooner than usual of the skills or lacks of the individual student. However, we must remember that in

a 5,000 population institution, the chances of "losing" people is always great.

How shall we go about setting up a guidance system? Certainly the use of the computer demands the collection of data. We hold that data should be collected only if it has specific relevance to decision making at any level. It makes no sense to collect data that cannot be used to help a student grow or learn. The data can be collected at any point of the interaction of the student and the institution or those relevant to the student. Information sources may be (1) the parents (2) the student within the teaching situation (3) the student from outside the teaching situation or (4) the junior high school relevant to the students' courses in high school. In each of these areas or interfaces the information should be collected in a way that makes sense for the students' needs.

The information that is collected must be opened to access in a manner that does not harm the individual student. The administrative integrity of the organization - must not have more importance than the end product or goal, namely the improvement of individuals. If information is to be collected that can possibly harm the individual because it can be used out of context, then proper procedures must be developed to provide privacy or selective access to specific information or the destruction of the collected information at appropriate times. The need for special coding so that access is limited is crucial. Either everybody has equal access or nobody has total access: only in these two ways can there be checks and balances in a system which can be extraordinarily powerful in the lives of people. Those chosen to develop the SEC and its guidance system must be aware of the process at every point in the collection of the data.

It must be emphasized that the categories of data to be collected must be open to change depending on new ideas, concepts, information and programs.

To summarize briefly, the uses of the computer in the development of a meaningful guidance system for the SEC might be these:

1. Administrative tasks - budgeting, payroll, procurement of supplies, etc.
some of these will be based on the number of students enrolled and the utilization of supplies. The way in which students use the resources will be reflected in the budget request of the school. Information for reports can be obtained from the computer. Personnel records. The flow of students from various feeder schools through the SEC and into colleges can be developed. The basic utilization of the computer is in planning from daily schedules to long-range so that additional resources, new approaches to teaching, and the development of new services may be organized.
2. Educational tasks: Not only scheduling can be done through the computer but also records kept that will be useful for post-graduate student situations such as opportunities for colleges or jobs. Information can be obtained about the effectiveness of courses and teachers as well as resources so that a more rapid change in programs may be attained.
3. Student use: The student can find out where and when he should be in a particular place to achieve his goal in personal education. He can obtain data about himself to influence his decisions. He can obtain read-outs on test scores. He can find out about job openings, extra-curricular activities, etc.
4. Special services: Computer operation will only be relevant if reasonably appropriate services are available to students and their families once the information is present. There must be a constant dialogue between the guidance system and special services so that each influence the other. Guidance people should have quick access to the services

and to the administration so that the program and the service changes are relevant to the students' needs.

Implications for facilities for the Guidance Program

A. Resource Unit

In each resource unit there should be a guidance area to include:

1. Office space for counselor for private interviews, files
2. A small waiting room with a guidance library
3. A conference room - seminar size for students and/or parents and/or other personnel services, equipped for AV use.

B. Central Facilities

A suite of rooms for use by the office of Student Services to include:

1. Offices for the coordinator of Student Services and staff (4)
2. Reception area with informational library
3. Testing-conference rooms (2).

PART V

Recommendations for Space and Facilities

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V. RECOMMENDATIONS CONCERNING SPACE AND FACILITIES

A. Introduction

The educational program outlined in the previous sections of this document indicates, we feel, a quite different and new approach to the conduct of urban secondary education. It is a program that will require a great deal of continued planning (dealt with in more detail in the section that follows this) and a great deal of continued re-thinking of how secondary education is currently being carried on. It is also a program which includes and depends upon a re-thinking of what spaces and physical facilities should be provided and how they should be arranged in an urban setting. The SEC, we repeat once again, is not just a high school. It is a whole new way of looking at how urban secondary education should happen and depends in large measure upon the creation of a radically new and different total environment in which students and teachers operate.

We have not developed a scheme that includes cultural arts, a public concourse with commercial facilities, the occupational services center, a multi-service center and a close relationship to community housing and the total site simply for the purpose of having a large number of different things going on in a small area. We see all of the various components of this plan as being highly and logically inter-related, with each component making its particular contribution to the over-all concept of what this urban education complex should be and do.

This brings us to a crucial point in both the argument we are trying to make and in the design process itself. We are all aware that, no matter what educational programs we propose or hope to establish in and for the SEC, unless we are able to provide the right kinds and right amounts of space all carefully planned in the proper relationship to each other, the total plan makes no sense and is doomed to failure. For we all know, too, that to a large degree the facilities, once they are constructed and are there, are going to shape

and largely determine the learning process and the educational programs we can provide. This is the history of school and school facilities, and there are innumerable examples of the way inadequate or poorly planned facilities have made it impossible for educators to do the educational things they feel need to be done.

It is vitally important, therefore, that the process of deciding what should be included in the complex, what can or cannot be included from the point of view of funding and feasibility, and just how all the various parts fit into an over-all functioning system, should be a careful and not a hasty process. It is important that people not make snap judgements about feasibility or attempt to arrive quickly at a final list of what is to be included or excluded, at least until there has been more time given to a study of such matters.

We see the over-all system for the SEC as breaking down into four interlocking subsidiary systems:

1). A system for resources.

By resources here we mean all of those people, services and technical aids that will assist the student in achieving his goals in the learning process. This means also arranging these resources in such a manner that students have maximum access to the resources. Resources, here, then, mean teachers, counselors, para-professionals, administrators when necessary, all media and materials (books, magazines, audio-visual devices, labs, shops and academic spaces) health and psychological services and all of the resources we envision as coming from surrounding colleges and universities and business and industry. The system is the organized arrangement of these resources so that students can use them efficiently.

2). A system for educational choice and selection

Once the resources have been organized and made available, there must then be a system devised for organizing the students in such a way that they can make use of the resources in a rational way, so that they can make choices about what they are going to learn and how, so that they can make changes in their programs as they themselves change and as the available resources grow and change. The attempt here, working with counselors and advisors, is to make a continuous and continual match between the student and his program and the resources available. This also involves

keeping track of a student's progress or lack of same and a continual feed-back process to the student himself, to his counselors and advisors and to parents.

3). A system for movement and management

The first two systems, once established, then demands a system for making sure that the two systems operate as a whole, that students do not get lost or neglected in a single system, that when they make a choice or a decision that choice can be carried out, that the student can actually find the right resources at the right time, that he can arrange his schedule so that he and the resources meet. This could be called a system for administration except that it also includes ways of designing the facilities so these kinds of interactions actually take place. It also includes such things as transportation to and from the school and the establishment and control of proper densities of people throughout the complex.

4). A system for distribution and support

This is an adjunct to the previous system, except that it calls not only for the design of methods and facilities for the distribution of materials and services throughout the school (books, media, food, gas, water, electricity, etc.) but also for the handling of ways to provide such things as repairs to equipment, security, and the provision of facilities for the physical management of the complex.

We have not yet had an opportunity to translate all of the requirements listed in the preceding sections into the four subsidiary systems outlined here. This is a complicated job and requires work not only by planners in the school department but close cooperation with these persons in the Public Facilities Department (who will be working on the design requirements and limitations) and the architects. We are also still in the process of establishing some general guidelines concerning the quality and arrangements of space (the necessary degree of amenity, for instance, and more specific ideas of how particular parts of the program relate to other parts).

Thus, what follows here is basically a list of necessary spaces derived from the preceding educational program. We do not mean the list to be final or permanent or that upon further analysis we will not find that in some cases we have duplicated spaces or not requested enough space. We have also refrained from specifying sizes or square footages, at least until we can

develop more definite information on specific needs.

In the design of a plan as complex as this, it is obvious that the number of variables one has to hold in one's head at the same time is much too large for any human brain to encompass. It is for this reason that we intend to use, as quickly as possible, the simulating procedures available to us in the GASP computer program. By this means we will be able to build a model of this school inside the computer and thus make trial runs to see if our schedules and space requirements work.

B. Facilities

This following section represents an attempt to enumerate space, physical properties and educational characteristics of the various components of the SEC. It must in no way be viewed as an attempt to impose architectural constraints either by statement or implication. Allusions which have been made to the number of persons seen as using a particular space, such things as a specific purpose being listed or a seating capacity being offered are of themselves not to be viewed as confinements upon the architect but merely as an induction of function. To attempt a facilities listing without a concise statement as to their use, or educational purpose would be logically self defeating of the rationale for such a compilation.

The subsequent pages contain a break down, by no means complete, of certain physical aspects of the SEC campus. An arbitrary partition of resources has been made in the listing. The first category concerns itself with the Instructional houses. The second with the space and properties implied in the central facilities which includes such components as the Cultural Arts Center, the Central Media System, and the Physical Education Complex.

In so far as the purpose of this document excludes any mention of specific architectural form, design and construction details, interior decor, etc., we have carefully avoided mentioning in this section many of the intrinsic spaces common to all physical structures. Among the omitted spaces would be such vital needs as adequate sanitary facilities throughout, spaces devoted to the custodial and maintenance function. Also omitted are spaces consistent with the needs of heating, air conditioning, lighting, plumbing, elevators, entrances and egresses, etc. We postulate the apportionment to all areas of appropriate storage and supply rooms. The foregoing storage requirement is seen as including both remote departmental type supply centers as well as most of the immediate access type logistical stations required proximate to all shops, laboratories and studio spaces. Additional spaces conducive to establishing all variables

of environment, acoustics as well as general purpose furnishings are by-passed in most instances. In the few instances that such specific requests have been listed, they are intended to reinforce the facility needs of a particular area or instructional space.

1. Facilities in the Instructional House

Specifically, each house being planned for the SEC will include the following facilities.

- a. Academic Spaces that can be arranged and rearranged for flexible use as program changes demand. The academic spaces would include not only "classroom" size areas (20-30 students) but space convertible to use for
 - small groups (15-20)
 - seminar groups (6-15)
 - discussion groups (2-6)

While the anticipated projection for a 1972 opening will undoubtedly require many "classroom size areas, the general policy of the school regarding the instructional process will be toward smaller student groupings. Most of the academic spaces should be designed for use by more than one discipline with the use of portable equipment and media. Many would be used for different course disciplines during the day and adaptable to specialized room as needs dictate. The following spaces categorized as classroom and seminar reflect the anticipated needs in the house for academic spaces.

Three (3) Foreign language classrooms

suitable for quick conversion by use of mobile equipment into mechanized language laboratory space adaptable for small group work by means of moveable space dividers.

Five (5) History and Social Science classrooms -

to have moveable walls to accommodate varying size groups. Provision for 3 seminar spaces and 2 small group spaces in addition to these classrooms.

Five (5) Mathematics classrooms -

one cluster expandable to accommodate 50 students at one time. Each classroom to accommodate small groups or individual carrels with the use of portable dividers. Provision for two seminar size spaces in addition to the classrooms.

Three (3) Business Administrative classrooms (non-specialized activities. These would include -

General Business, Business Law, Economics, Economic Geography and Merchandising. All rooms should have three depressed electrical outlets for audio-visual purposes. All rooms are to be flexible in design to provide for expansion of contraction to accommodate larger or smaller groups than 25.

Two (2) Music classrooms located near the rehearsal and practice rooms in the house.

One (1) Health room with an adjacent seminar room - located in the section of the house closest to central Physical Education facilities.

Six (6) Language Arts spaces with the possibility of expansion of a group of them into a large instructional area. Provision for three seminar spaces in addition to the classroom spaces.

b. Specialized Rooms include laboratories, shops and specially designed "classrooms".

In Business Education, five (5) special classrooms

- Accounting Room- room should be flexible in design to provide for expansion. Sufficient electrical outlets - depressed at ten key calculator and bookkeeping machine stations and for audio-visual purposes.
- Office Machine Room - room to be carpeted and have acoustical walls and ceilings. Electrical outlets at all pupil stations. One section of room to be glass partitioned for production work.
- Typewriting Room - all classes carpeted, acoustical walls and ceilings. Room construction to provide for flexibility. Electrical outlets - depressed at all pupil stations. Room should have three depressed electrical outlets for audio-visual purposes.
- Shorthand Room - room equipped as dictation lab. All classes carpeted, acoustical walls and ceilings. Electrical outlets depressed at all stations. Earphone outlets at all pupil stations.
- Machine Transcription Room - room carpeted and acoustical treated. Electrical outlets depressed at all pupil stations. Electrical outlets depressed for audio-visual purposes.
- Distributive Education Room (1 for every two houses) - all classes carpeted. Display windows facing corridor. large enough to accommodate mannequins.

Music Area in each house to include

- two regular classrooms per house
- one large rehearsal hall for orchestra and band with appropriate storage areas
- three practice rooms - air-conditioned and soundproofed
- one listening room with soundproofed cubicles or more open areas with headphones.

Visual Arts

- One All Purpose studio for introductory art programs.

Language Arts

- 1 Student Publication Workshop which would be the house publications office directly related for work in Journalism
- 1 Speech Laboratory to include a
 - language laboratory
 - 2 speech-seminar rooms
 - 1 rehearsal room
 - a storage work area
- 1 Skills laboratory (as part of the Language Arts Departmental Center) to accommodate 50 students and include:
 - 4 reading laboratories
 - 1 conference room
 - 1 individual study room with special reading materials

Home Economics

- 1 Clothing and Textile Laboratory
 - Part of Home Economics suite, near Food Lab and experimental lab.
- 1 Food and Nutrition Laboratory (one in each house)
 - As part of a house Home Economics suite.
- 1 Experimental Laboratory

In Industrial Arts, - certain Industrial Arts Labs would be included in the house. All in-house labs should be adjacent to one another and near the science facilities. These labs should include:

- 1 Drafting Room
- 1 Comprehensive Lab
- 1 Electrical-Electronics Lab

For Science, house facilities would include: Laboratories - The house science laboratories should be lab-lecture spaces with a preparation-storage area for every two labs. In each house there should be recommendations for the following laboratories

- Earth Science (1)
- Space Science (1)
- Introductory Physical Science (also used for Survey of Physical Science (1)
- Biology (2)
- Chemistry (1)
- Physics (1)
- General Purpose (Physics - Chemistry) (1).

- Lecture Room - to accommodate 100 students at a time.

- Three Laboratories - one each in the Mathematics - Social Science - History and Language Departmental Centers.

c. Departmental offices in each of the following subject areas - Language Arts, Language, Social Science-History, Mathematics, Science, and Business Education. Each departmental office would contain

- 1 office for the Department Head or subject curriculum specialist
- 1 conference-workroom with a small professional library
- 1 Departmental Laboratory - (included in Specialized spaces (above)
 - Language Arts - Skills Lab
 - Mathematics - Math Lab
 - Language - Language Lab
 - Science - General purpose Lab
 - Business - Stenography Lab
 - History-Social Science - Social Science Lab

d. Administrative

Offices for house master, and administrative assistant.
Health suite - adequate sized for nurse's office and adjacent treatment room.

A house office area with a waiting area and conference rooms.

e. Resource Units (5 per house)

The Resource Unit, as the basic unit of the school emphasizing guidance and student-teacher interaction, represents a major innovation. The facilities for the Resource Units are conceived of in terms of the primary functions already described. Individual study spaces would be grouped near the student's continuous file and storage space. While not every student would have his own study space, three clusters of 25 spaces would allow 75 independent study spaces per Resource Unit (each student assigned to one of the clusters where his file would be kept). Located adjacent to the cluster would be teacher-advisor stations where teachers could work, meet students and be easily accessible. Up to three teachers and a paraprofessional could be near the cluster at a time.

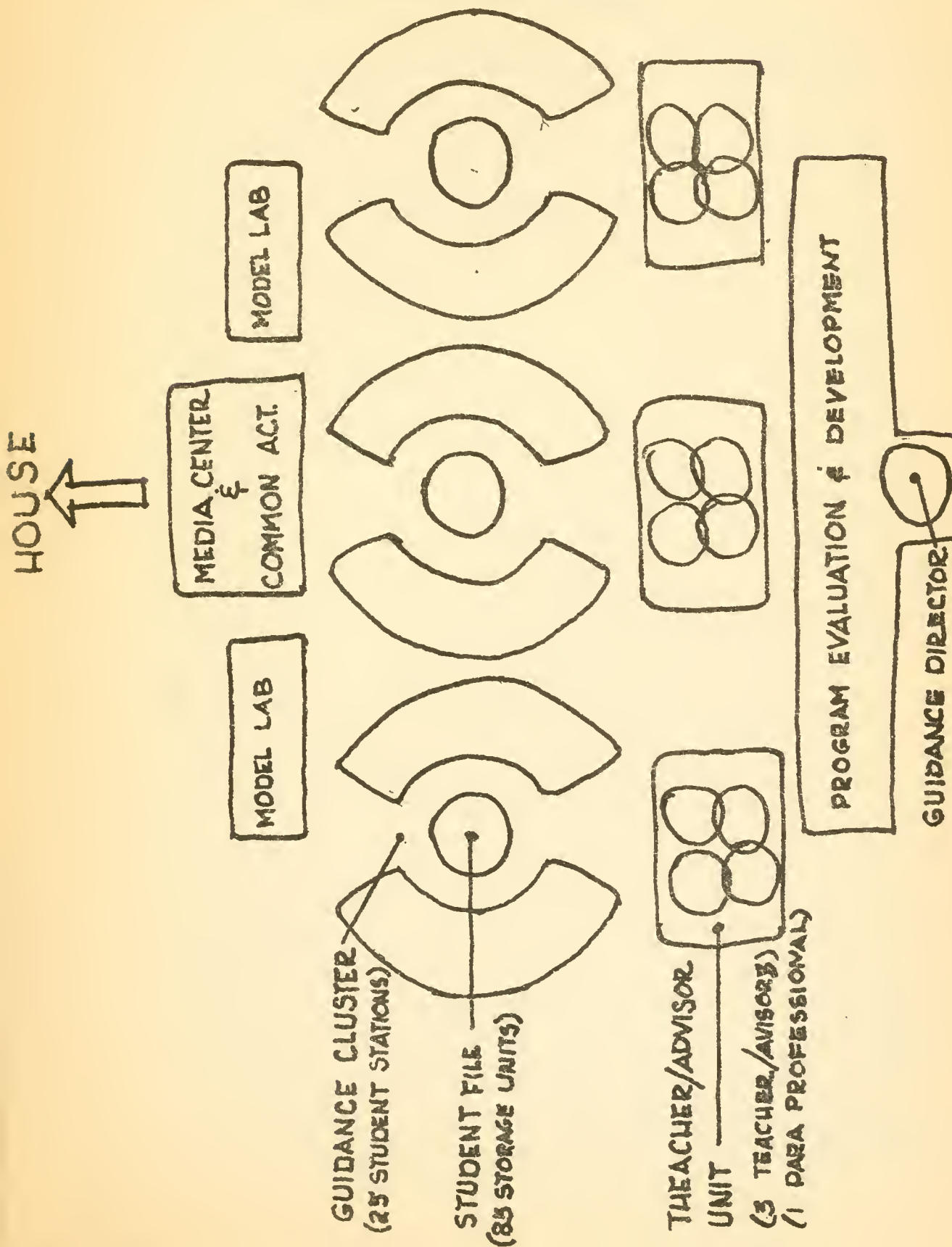
Also located near the clusters and near the teacher stations would be laboratory - work areas where students can design and work on projects, paint, build models and conduct experiments. At a more central location but near the teacher positions would be the space designed to teacher program development where teachers could meet and work and yet be near enough and accessible to the students not to inhibit contact. A guidance office for the Resource Unit would be adjacent.

The central portion of the Resource Unit would contain activities shared by all, recreation space, the media center or sub-library and the parents' room. Both the sub-library and the recreation space would contain activities for 20 to 25 students. The parents' room would be a reception and waiting area.

f. Theater Lecture Hall (250-300 students) for larger dramatic or musical presentations, film or TV viewings, for resource unit group meetings and for all learning situations conducive to large group instruction. This hall must be divisible into smaller spaces to accommodate varying size large groups simultaneously.

SCHEMATIC OF RESOURCE UNIT

250 STUDENTS ASSIGNED



g. Dining Space

Student eating should be organized on a house basis. It should be a cluster of smaller rooms located adjacent to a central Food Distribution point in each house.

h. House Media Center - providing study spaces for about 250 students at one time in each house.

Basic components of House Media Center:

An overall list of recommended spaces

1. Offices:
 - a. Chief - House Media Center
 - b. Media - Technician
 - c. Clerk-Typist
2. General Reading and Study Areas
 - a. Reading Lounge
 - b. General Media Area
 - c. Carrels (200)
3. Technical Areas
 - a. Circulation
 - b. Counter
 - c. Catalog
 - d. Reserve Area
 - e. Workroom
 - f. Stacks
4. Special Rooms
 - a. Material Preparation Workshop
 - b. Conference Room
 - c. Typing Rooms (5)
 - d. Seminar Rooms (3)
 - e. Listening Rooms
5. Reference Area:
 - a. Stacks
 - b. Accessible Catalog
 - c. Counter
 - d. Reserve Area
 - e. Workroom

Media Store - a self-service store as a wing of the House Media Center

Music Room - to listen and enjoy various types of music. Located in or near the Media Center of each house.

Small Tutoring Carrels - for a proportion of incoming students. To handle two to four people in a house of 1250 (50 carrels would be desired).

2. Central Facilities

Administrative Facilities: One component of the central facilities would be the administrative area. We would have this management unit made readily accessible to all and suggest a location on or adjacent to the public concourse. An analysis of space requirements within this area is seen a quite varied and to permit proper function must be planned to allow for flexible use. Spaces to accommodate the following are recommended:

Administrative offices for the principal, six coordinators, and department heads not located in specialized facilities including all necessary space allotments required for secretarial staff.

Conference rooms for consultation among parents, teachers, administrators and guidance groups. These could be utilized in small function rooms for community and civic groups during day and evening hours.

A general central office for records, telephone communication, an inter-communications system, a computer center, pupil personnel accounting services and data processing, etc. (In the absence of a statement on the topic of a computer on campus a suggestion for computer capabilities is included with this section.

A central guidance suite for home adjustment counselors, test and measurements and student evaluation services. The coordination and administration of the school guidance program would originate here under the supervision of the appropriate coordinator.

A central health complex with a waiting room, nurses room, examination rooms.

The question of offices and other spaces for community, welfare, recreational and civic agencies in this central facility (and the relationship of these agencies with the school) has been discussed in other sections of this document. Sharing a location on the public concourse would be the proposed Multi-Service Center. The space requirements of the school-community liason departments might well be met within this area.

Computer Center: The implication of the computer age and its rapidly advancing technology as it relates to SMC has yet to be fully comprehended. It has however a clear cut role as a component in the instructional content of the business education area. Once a campus computer center is established

to serve the educational needs, the logical use as a research and administrative tool is clearly posited.

Certainly a computer facility either on or off campus will be engaged in the monumental task of programming the 5000 students. Scheduling, test scoring, pupil accounting in general, are tasks where this becomes a necessity.

The practice and ramifications of Computer Aided Instruction (CAI) is currently being subjected to nationwide investigation. With the advent of the remote console, time sharing, such technology as the cathode ray tube, light pens, audio-visual capabilities, a limitless role in supplement to the human factor in education is portended.

Accordingly the following minimum recommendations are made. A small computer and all necessary unit record keeping equipment should be located, on campus, in the central administrative area. This computer center would serve the instructional, experiential needs of all departments including the business education as one of its major users. The facility will also provide the "hands on" associations required by the computer programming courses offered in the mathematical and scientific areas.

To support the instructional efforts of this facility, it is recommended that the usual adjacent machine room containing such peripheral equipment as key punch machines, sorters and collators be of sufficient size to accommodate small groups of students along its users. Clearly an adjacent instructional space not unlike a conventional classroom would be a necessary component. Consistent with the dual role envisioned for this facility are space requirements of such a nature to permit the simultaneous functioning of the center as both an educational and administrative resource.

As an administrative resource it would have great value in the compilation of student attendance, pupil scheduling, and accounting, unique to the SEC. Clearly the advantage of a local personnel file regarding staff members'

talents and strengths would be a great asset. The implication of the computer as a tool, subject to use by the staff of the central resource center has a vital significance. Finally the campus computer center would be used to establish a liaison with the city-wide data processing center now maintained by the school department.

The major tasks of programming, pupil accounting, test scoring, the maintenance of permanent historical records would be carried as usual by the central data processing facility maintained by the school department.

In order to provide the required access to the information stored in this city-wide data processing center, and to maintain a capacity for immediate rescheduling of a student, it is recommended that remote consoles be strategically located on campus. As a minimum commitment we propose that a console linked to the city-wide data processing center be located in the counseling area of each resource unit, in the campus computer center, and in the office of the coordinator responsible for scheduling and programming.

The attempt to assess the computer implications in the SLC was viewed from a position of what should be the minimum expectation. The one certain observation that can be made is that the state of the art in the early and middle seventies will be highly advanced from our present conception.

It seems premature to make a full subscription at this time to extensive and extensive hardware presently necessary for the implementation of Computer Aided Instruction. This is especially true in view of obvious program requirements and current software deficiencies.

We feel that some basic architectural commitments can be made now to realize the full educational potential of the computer at any level of "sophistication" that the progress of the art makes possible.

Clearly the extent of subscription to campus hardware, the feasibility of the proposed network of consoles linking the SAC with the school departments central data processing center is totally dependent on the state of development of this vital city-wide agency. As advancing computer technology contributes to the evolution of the city-wide facility a more clearly defined commitment for the SAC will be possible.

Central Guidance Facility: A suite of four offices for the coordinators of the guidance function on campus. Located in the student services suite each office should have secretarial space attached. One general reception area with informational library is recommended along with a separate Testing-Conference room with audio-visual capability.

Central Food Preparation: To support the dining requirements of 5000 students, the faculty and staff of the SAC, it is recommended that there should be one central kitchen on campus. The students would be accommodated in relatively informal small dining groups within each house. It is strongly recommended that there be no large student cafeterias on campus but rather a series of serving points in each house in operation over a span of several hours each day. The problem thus presented becomes one of how to prepare, cook, transport, and preserve the character of high quality food. To this end, the SAC planners look to the recently announced Public Facilities Commission study on this matter and anticipate that its conclusions will offer the expertise to make a system such as we propose function effectively. As an additional auxiliary service the central kitchen facility might well be asked to support a campus restaurant open throughout the day and into the evening. Care would be required to locate such a restaurant so as to invite public patronage without involving an interruption of school schedules.

Family Life Center: As a component of the central facilities we recommend a Family Life Center. This would function as an instructional space administered by the Home Economics Department of the SAC. It would provide a

resource for the practical applications of child behaviour study. This center would function in cooperation with a day care service and provide a medium for identifying need and a basis for elements of preventative medicine. Space requirements for such a center would include:

- a nursery for infant care
- a pre-adolescent clinic
- offices for professional staff
- examination rooms for medical purposes
- an instructional space equipped with audio-visual capacity consistent with teaching role
- a location adjacent to or as an integral part of the Multi Service center located on the concourse

Logistical Support: To provide access to the SLC, to allow for parking and deliveries to be made with a minimum of congestion some spaces must be enumerated within the campus confines among these are:

A Public Concourse is seen as providing the main artery for campus pedestrian travel. All components of the SLC should have easy access from this facility. It should be a broad interior space completely traversing the linear configuration of the SLC. As stated, many school and community service departments are to be located directly upon this artery. The design implication is viewed as being not unlike the concourse seen in major airline terminals. It is proposed that the commercial facilities recommended for inclusion also be located on the concourse.

Service Road: Beneath the concourse and roughly paralleling its linear configuration, a roadway is proposed through which all shipping and receiving be done. Elevators and load points servicing the major areas of the campus are also thought as being an integral part of this facility. The second major use of the roadway is to provide access to the underground portion of the large parking areas that must be provided. The large flow of vehicular traffic expected to arrive and depart daily will almost certainly require a major portion of parking space to be located underground.

Parking and Bus bays: It is recommended that a minimum of 1500 spaces be provided for off street parking. Since the planners cannot assure use that the major transportation terminal will be completed when the SLC opens it is quite possible that large numbers of students will arrive by bus.

Accordingly, off street bus bays are recommended to meet this need. Their continual use over the years is seen in connection with arrivals and departures of tour groups, field trips and students who do not travel through the new MBTA Terminal.

TECH-SCIENCE CENTER

SCIENCE

Laboratory-Lecture Spaces: Each facility to include provisions for varying size instructional groups and specialized equipment as indicated by subject area.

- 1 Advanced Placement Biology and Micro Biology Lab
- 2 Advanced Chemistry Labs equipped to handle qualitative and quantitative analysis
- 1 Advanced Physics Lab
- 1 Medical Technology Lab
- 1 Astronomy and Meteorology Lab
- 1 Radio Isotopes Lab
- 1 Oceanography Lab
- 1 Geology Lab

Preparation Areas for Each Laboratory: Adjacent to each laboratory should be an area for the preparation of chemicals, slides, cultures and solutions as well as temporary storage of frequently used equipment.

Lecture Room: One hundred seat capacity amphitheatre acoustically treated to enhance audio visual capacity and support television taping potential.

Technological Support Area: The following areas require location within or adjacent to the laboratory facilities mentioned recommended

- 1 Greenhouse
- 1 Photography Room
- 1 Vivarium
- 1 Conference Room
- 10 Offices to accomodate head of department teachers and departmental secretary
- 1 Research Area to contain appropriate media and provide for student and faculty use as both a basis for independent study and research

Industrial Arts Complex: It is recommended that the central facilities contain as a component of the Tech-Science Center extensive areas devoted to study and exploration of the technological phenomena of the times.

Laboratory - Lecture Facilities:

Drafting Lab --- 1600 sq. ft. (to include blueprinting facilities)

General Metals Lab --- 2400 - 3000 sq. ft.

Graphic Arts Lab --- 2400 sq. ft.

Power Mechanics Lab --- 3000 sq. ft.

Structures Lab --- 3000 sq. ft. (Materials-Testing-Research)

Wood and Plastics Lab --- 2400 sq. ft.

Other facilities at the Tech-Science Center

Multi-purpose Area --- 3000 sq. ft.

Resource Center and Library

Department Head Offices and Conference Room

General Specifications

The Tech-Science Center Labs (except Drafting) should be on the ground level and have a 14 ft. ceiling height. Provisions should be made for easy access and overhead doors for the Power Mechanics Lab which will have an automotive hydraulic lift. The Multi-purpose area should have the same technical support facilities, that is, lighting, power, plumbing, ventilation as the other Central Labs. The Multi-purpose Area should also be equipped with overhead doors for easy access.

All Labs should have adequate and flexible light and power sources, acoustical treatment as part of structure, dust and fume control equipment where necessary, storage space, sliding vertical chalk boards, built-in projection screen and one or two study carrels equipped for audio-visual

use. In Addition, washing and drinking facilities should be in each Lab. Clothes, locker, and toilet facilities for boys as well as girls should be nearby.

The following Labs should have a glass-partitioned instruction and planning area because of the noise level of these activities.

Comprehensive Lab

General Metals

Power Mechanics

Structures

Wood and Plastics

Special Fixtures and Tools: The limited approach that this document makes to the Industrial Arts facilities is fully realized; however, as space allotments are firmed up it is hoped that there will be an ongoing cooperative effort between someone in the Industrial Arts field and a representative of the architectural staff.

As we commit ourselves to the specific labs, programs should be developed so that the proper tools, materials, and equipment can be ordered to implement the program.

All facilities should be planned for optimum community use with special consideration for access, storage and display areas. A special requirement of industrial arts centers is for a great deal of storage both of raw materials and student projects. Special care must be given not only in providing such spaces but also in insuring the security of projects during their construction period.

CULTURAL ARTS CENTER

The central facilities for the cultural arts program requires a variety of spaces to support the basic arts instruction offered in the house. Activities of an advanced nature requisite of very specialized spaces are recommended. Spaces will support both the performing and visual arts.

Theatre-Concert Hall: A 1500 seat auditorium embracing variable acoustical control. Such acoustics as one required for both drama and orchestration. The facility requires a large stage, adequate wings and back stage areas for large productions. An orchestra pit that can be raised and lowered from stage height to below floor level. A professional type projection and broadcasting booth. Adequate foyer with coat storage and rest rooms capable of handling large group intermission requirements. Impressive public access and with a location proximate to both public transportation and parking facilities. Additional immediate access to scenery, set construction and storage spaces is a necessity.

Additional Theatrical Space: Two large rehearsal rooms allowing for simultaneous preparation of dramatic productions are required. A special emphasis is warranted here in having suitable acoustics.

Music Rooms: Two rooms should be provided, one containing adequate space for band rehearsal, the other for chorus rehearsal. Both rooms as well as the other theatrical spaces should be equipped to provide complete sound separation from each other. Adequate storage for musical instruments is an absolute necessity.

Sound Proof Studios: Six studios are required for support of the instructional process. Each space to be equipped for varying group instruction and to have audio-visual capacity.

Little Theatre: A three hundred seat capacity theatre suitable for small concerts or large group instruction use. Facility must have projection capacity

and adequate amplification equipment. Acoustical treatment for recording, broadcasting and the origination of television taping is recommended.

Visual Arts Component: The visual arts area should be a cluster of connected spaces offering facilities for painting, sculpture, graphic arts and ceramics. The visual arts component should be grouped about the proposed sculpture garden. This garden is viewed as an interior space for the display of fine arts of sculpture in a setting most appealing and enhancing the value of the art work.

Studios: Spaces allowing for both group study and individual student work are recommended. A total of five types of studios are suggested:

2 Drawing and Paint Studios

Sculpture and Ceramic Studio

Crafts Studio: with equipment for working in wood weaving and jewelry making

A large General Purpose Studio: an area allowing for the interrelation of various artistic mediums. To provide a space for independent student and facility project development.

Gallery: An exhibition gallery to be located adjacent to traffic lines and the theatre-auditorium to show student and faculty work and to accommodate for display museum loans of general artistic appeal.

Lecture Hall: Equipped for large group instruction, with provisions for audio-visual use.

Film Facilities: Space implication necessary for production screening and editing of student films are recommended. Components are:

a small studio with acoustical control suitable for creating films and originating closed circuit televising

editing room

screening room

small classroom for instructional purposes.

Control Booth for Television: A control booth with visual areas to both the Theatre-Concert Hall and the small studio: A professional type well equipped facility for the origination of television broadcasting.

Cultural Arts Media Center: An area designed for the display and storage of books, tapes, film slides used in the cultural arts instruction process.

Central Media Center: The heart of the SEC media system is built around this 500 seat central facility. From here all media is received, distributed to, or stored for use in the various house centers.

Basic Components of Media Center

- Open to public through concourse entrance
- Primary supply source for house and other campus centers
- Provide extensive shelving (15 vols./sq. foot)
- Expansion capability for future needs of 200%
- Provide cool, dry basement for stacks and permanent storage
- Escalators for transport of students to open levels within the center
- Impressive entrance or lobby with check room or lockerettes
- Contain conference or group study rooms for 4-16 persons, glass enclosed, acoustically treated
- Provides for twenty typewriting roomettes allowing approximately 35 sq. ft. per occupant
- An audio-visual roomette
- A controlled access special collection room for display of rare books and exotic material
- A number of reading alcoves, each embracing a distinctive atmosphere and situated such that direct line of vision for supervisory purposes is maintained
- Offers a space with a Club Room environment
- Provides a comfortable reading lounge.

Other Facilities - A reference and media advisory area containing an office, book stacks, visible catalog file. An area devoted to bibliography, general media as magazines, newspapers is recommended.

A technical processing area to provide space for work room for each of the following:

- audio-visual workroom
- graphic production room
- print shop
- photographic studio and dark room

The center should provide a circulation service area with the main visible catalog located here. A provision for a reserve book area and work room is recommended.

A media store offering for sale all types of media, equipment and supplies for the student in connection with general media needs.

Office space should be provided within the center for director and his secretary, the audio-visual Director, both the professional and production staffs.



Physical Education Complex

Outdoor Spaces: A total of 20 acres is recommended for the outdoor activities designed to promote good physical training to SAC students. It is further recommended that approximately 3.5 of these acres be black topped for additional appropriate playing surfaces.

Grass Area (Converted to seasonal use)

Fall Sports	Spring Sports
2 Football fields	Track and Field, Lacrosse
2 Soccer fields	4 Softball fields
1 Field Hockey Area	1 hockey field
2 Fields for Hockey or Soccer	2 baseball fields

Black Topped Area (Year round use)

12 basketball courts
10 tennis courts
6 handball courts
4 volleyball courts

Two Gymnasiums: One for use as boys physical education; the other for girls.

Features common to both Gyms:

Two large corrective rooms
Visiting varsity team room
Home varsity team room
First Aid Room
2 classrooms
Offices or Rooms for administration
teachers and coaches
Dressing room for officials
Dance studio in Girls' Gym
Lockers, Showers, Laundry, Towel space in each

Field House: Recommended as a spacious facility, large enough to accommodate track meets on both a city wide or state wide basis

Space implications

a regulation varsity basketball floor
Indoor cache facility
A large seating capacity provision sufficient to accommodate small conventions or political rallies.
a weight training room
a wrestling room
1 handball area
Rooms to accommodate varsity track team, varsity teams, coaches office,

instructors' office, officials' dressing quarters
Trainers' Room
2 Classrooms
Locker and shower facilities separate from team rooms

Swimming Pool Complex: It is recommended that this space include:

1 Olympic size swimming pool
1 diving pool
1 shallow water pool for non-swimmers
Each pool to have a proximately 20' of deck space
Separate locker and shower facilities
Movable or sliding roof to allow pools to be open to sunlight
A separate community entrance is recommended
A checkroom for community use
Towel and suit distribution room
Wet sanitary facilities area
Offices or rooms for instructors and coaches

Skating Area: The skating surface should be provided in a regulation size hockey rink. The rink is convertible during off season to use as:

roller skating
tennis courts
dance area
general games area

The rink should provide quarters for varsity and visiting teams. Lockers and shower facilities as well as a large general purpose interior space to be designated as a warming room. A "Zamboni" type ice resurfacing machine is a vital necessity.

Public use of SIC Athletic Facilities: It seems advisable to state that such high quality physical education spaces as we have recommended should attract much community use during the evening and other hours of limited school use. The space implications of such use might be stated as providing for adequate entrance and egresses leading directly to outside areas. The additional use poses the requirement of adequate locker and shelf space for beyond that required by students or varsity teams.

PART VI

Continued Planning

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VI. CONTINUED PLANNING

The plan outlined in the previous sections of this document is an unusual plan and an unusually complicated plan. Since it is an attempt to meet at least some of the educational demands of contemporary urban life, it is as unusual and complicated as urban life itself.

One of the primary demands that contemporary urban life makes upon all of us is the need for comprehensive and intensely cooperative planning. Although we do not claim to have performed this task to perfection, this plan is the result of discussions and joint planning with a wide variety of people -- people in the various communities directly affected by the SEC, people throughout the city who are potential users of the SEC, various city agencies such as Model Cities, BRA and PFC, people from various community organizations in different sections of the city, people in other relevant parts of the Boston Public Schools and in local colleges and universities. It has been in large part the desirability as well as the necessity for this kind of intense cooperation that has made the process of developing this plan so lengthy. Talking to people and gaining their involvement in a planning process takes time. It is comparatively easy for a few experts to sit down and design a conventional high school, but that is hardly the way to produce a viable and truly useful contemporary school that will really serve the needs of an urban community in the latter half of the 20th Century.

This process of involvement and joint planning is not by any means completed with the presentation of this plan in its present state. Indeed, the process has only just begun. What we have set down here is only the broadest outline of a plan that could contribute to the continuing revitalization of the secondary education system (both public and private)

in Greater Boston. Once -- and if -- the broad outline is acceptable to all of the various parties concerned, we then enter a period of continued and even more intensive joint planning to develop the hard specifics of a more final and complete plan. This process will not be quick and easy, either. The plan outlined here still contains many unresolved questions. It makes several proposals (such as joint occupancy with commercial facilities) that still require changes in existing law (so far as we know at the moment), but there are many other problems as well. The joint use of the cultural arts center, the design, funding and construction of the multi-service center, the full development of the curriculum of the SEC and its teaching methods, the further development of the organizational plan for school, for its guidance system, its media services, its admissions criteria, its relations with colleges, universities, business and industry, its relation to and with other secondary schools in the Boston system, teacher recruitment, the further refinement of facilities specifications and working with PFC and the architects on the actual design of those facilities.

All of these tasks still remain to be done and will have to continue up to and in some cases beyond the actual opening of the school in 1972. We assume that these planning responsibilities will fall within the domain of the new Planning and Research Center which is scheduled to go into operation in September 1968, as a continuation and expansion of the present Interim Planning Center under OPD. The tasks, of course, will continue to be conducted in close cooperation with other parts of the school system, with the superintendent of schools and the administrative staff, with the School Committee itself, with the Planning Center's Advisory Cabinet and the various other community and educational institutions. In this process

we also assume that the present form of the plan will undergo change and refinement. That is part of what a planning process is all about.

We see the main areas of continued planning as the following, with the understanding that many of these studies and plans will be in the process of development at the same time and that they are in most cases closely intertwined:

1. Site Planning and Development

While the primary responsibilities for the development of the over-all site rests with the BRA and the PFC, the School Department has an obvious interest in these matters, especially since this plan has taken upon itself to make recommendations about the use of land. Similiarly, the Lower Roxbury Community Council and Model Cities will also have a great deal to say about what happens to this piece of the Model Cities area. We intend to keep in close touch with all of these agencies and to work cooperatively with them in the development of the site and the working out of all of the complex matters, such as the arrangements for joint occupancy with commercial space and the multi-service center, that go with the SEC. This would also include the working out of funding programs, the acquiring of federal funds from various federal agencies, etc.

2. Organization of the SEC

While we have made some over-all suggestions about how the SEC should be organized, staffed and administered, these have not been spelled out in great or even adequate detail.

Such plans as these obviously call for close decision-making arrangements with the administrative staff of the school system and the School Committee, as well as with schools of education, the various communities involved and any and all possible sources of staff recruitment. The areas that need to be worked out in detail include administration, teaching, para-professional, advisory groups, the use and placement of individuals and organizations outside the school system, and the guidance and counseling system.

3. Curriculum Organization and Development

While we have made a start on the organization of a curriculum for the SEC, we have only begun the process of translating this into actual teaching structures and organized sets of materials. Nor have we as yet begun to define teaching styles or the inter-action of various parts of the curriculum, such as the relation between the interdisciplinary teaching teams in the Resource Units to the departmental structure as outlined in the department centers. The actual development of relevant materials is obviously a job that requires massive outside assistance, especially from curriculum development organizations, colleges and universities and business and industry. Another area that needs careful planning and decision-making is the amount of teaching and learning that should go on outside the school as a complement to what is going on --

inside the SEC. These developments will obviously require close working arrangements with the curriculum departments in the school system and their intimate involvement in this part of the planning process.

4. Relationships with Other Organizations and with the Various Communities Across the City

These we see as breaking down into three main categories:

- A. The civic and community groups, both local to the school and city-wide, that will need to be involved in the planning or at least kept in close touch with the development of the SEC so that they will prepare for its arrival on the educational scene.
- B. The college and university community in the Greater Boston area, which we hope to see closely integrated with the development and eventual operation of the SEC, not only in the establishment of working relationships, exchange of teachers and students, etc.
- C. Business and industry, in the working out of joint and cooperative programs ranging from work-study to on-the-spot study of industrial operations by students.

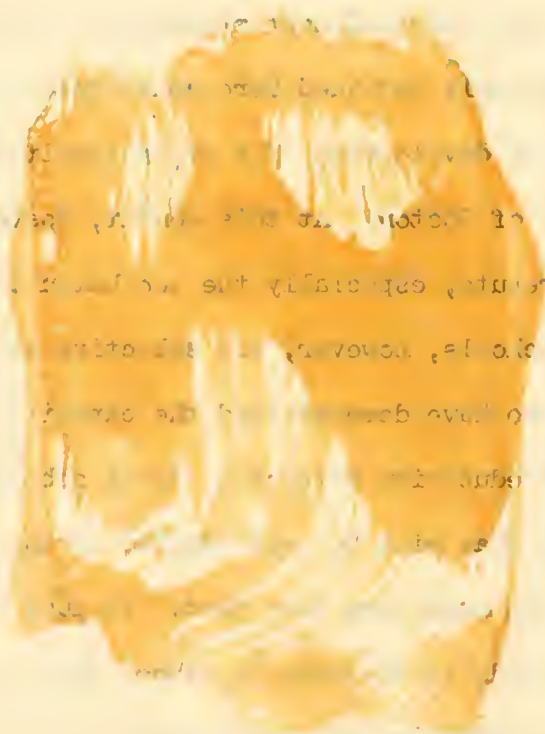
5. Facilities Design

We see a continuing relationship throughout the process of the architectural design of the SEC between the Planning and Research Center, the Public Facilities Department and

the architects. There will be an immediate period during which the facilities recommendations contained in this document will be made more specific. These in turn would be fed into the design process and feed-back obtained from PFD and the architects as to feasibility, cost, etc. Out of this process over the next two years the final facilities design should emerge for final approval by the necessary governing bodies involved.

The Planners of the SEC feel most strongly that the educational and facilities programs broadly outlined here constitute a bold and eminently worthwhile plan for the development of a major institution of secondary education in the city of Boston. At this moment, Boston has several schools of national repute, especially the two Latin Schools and Technical High School. These schools, however, are selective schools and are thus limited to students who have demonstrated the capacity and the interest to handle the type of education offered at those schools. While the SEC will also be a school that will be well-adapted to this kind of student, we feel that it must be much more than that. It must be a school that is well-adapted to all kinds of students, a school that is attempting to establish patterns of education that will apply to all of those students as they and the world will be changing over the next several decades.

In this sense, then, what we are proposing here is a new kind of school, a kind of school that a few other places in this country are beginning to feel their way towards with greater or lesser degrees of success. We see no reason why the city of Boston should not be among the leaders -- if not the leader -- in the creation of a new kind of secondary education for this nation.



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